

Monthly and Seasonal Mean Analyses

**March, April, May
1990**

ORGS UKMO M

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Monthly and Seasonal Mean Analyses

**March, April, May
1990**

**Mean fields obtained from the
archive of operational analyses**

Met O 20 (Dynamical Climatology Branch)
Meteorological Office
London Road
Bracknell
Berkshire RG12 2SZ

May 1990

Note: Permission to quote from this document should be obtained from the Assistant Director of the above Meteorological Branch.

Monthly and Seasonal Mean Analyses

Introduction

The archive of operational analyses contains a continuous record of global analyses every 12 hours (00 and 12 GMT) from May 1983 onwards. They are copies of the update analyses produced in the operational numerical weather prediction system using the 15-level model (Bell and Dickinson 1987). In this booklet there are presented monthly and seasonal mean fields computed from the archived analyses for a single season. Since a season spans three calendar months, there are four sections. Sections 1, 2 and 3 contain charts of the monthly mean fields for each month, and section 4 contains charts of the seasonal mean fields. The seasonal means are the means of the fields in the first three sections, weighted according to the number of days in each month.

Each section contains a set of charts for the northern and southern hemispheres and a set for the tropics. In each hemisphere, polar stereographic projects have been used to prepare a chart of pressure at mean sea level and composite charts showing both height (contours) and wind (vectors and isotachs) at 850, 500, 250 and 100 mb. In the tropics the charts are presented on a latitude-longitude projection encircling the globe in three sections covering the longitudes 0° – 120° E, 120° E– 120° W and 120° W– 0° . This projection has been used to produce a series of charts of wind vectors and isotachs at 850 and 250 mb. On all charts, contours are depicted as solid lines, wind vectors as arrows and isotachs as dashed lines.

When archiving was first undertaken, for May 1983, global fields were stored according to their coefficients in a series of spherical harmonics up to a triangular truncation of T40 (Swinbank 1984). Since this is roughly equivalent to a latitude-longitude grid with a resolution of 4.5° by 4.5° , the conversion from the model's standard grid of 1.5° by 1.875° to the spectral representation results in some smoothing of the fields. Subsequently, a new method for storing the archived fields was developed as a result of discussions within the Working Group on the Development of the Operational Suite (WGDOS). This method uses a compressed digital coding of the original model field, on its standard latitude-longitude grid, but with fewer significant figures (Lowther 1986). It was implemented on 18 December 1985 in a limited version. After the inclusion of more fields, and following monitoring to ensure that the two representations (i.e. truncated spectral and compressed grid-point) of the archived analyses were consistent, the spectral archive was terminated on 31 October 1986.

The contents of the archives may be examined by consulting the computer data set 'M20.NARCHIND', where the tape number, file number and data set name for each archived day may be found. The fields in the spectral archive are stored in the format required by the post-processing (p-p) package. Details of the format and of the subroutines to be used for accessing the data are described in the manual for the p-p package. Some examples are shown in Swinbank (1984). The fields in the daily grid-point archive are stored as printfiles (Lowther 1986). A list of the fields in each of the two versions of the daily archive is given in the relevant documentation.

The monthly and seasonal mean fields have been computed from the spectral archive up to the end of October 1986. Thereafter, they have been computed from the grid-point archive. The mean fields are held as computer data sets in Met O 20, in spectral or grid-point format, as appropriate, and are available for general use. Means for each month and season over three years of the spectral archive are also available. The mean fields that are held are as follows:

Field		Pressure level (mb)					
Westerly wind component	(m/s)						
Southerly wind component	(m/s)	1000*	850	700	500	400	300
Height	(dam)	250	200	150	100	70	50
Temperature	(K)						
Relative humidity	(%)	1000*	850	700	500	400	300
Pressure at mean sea level	(mb)						

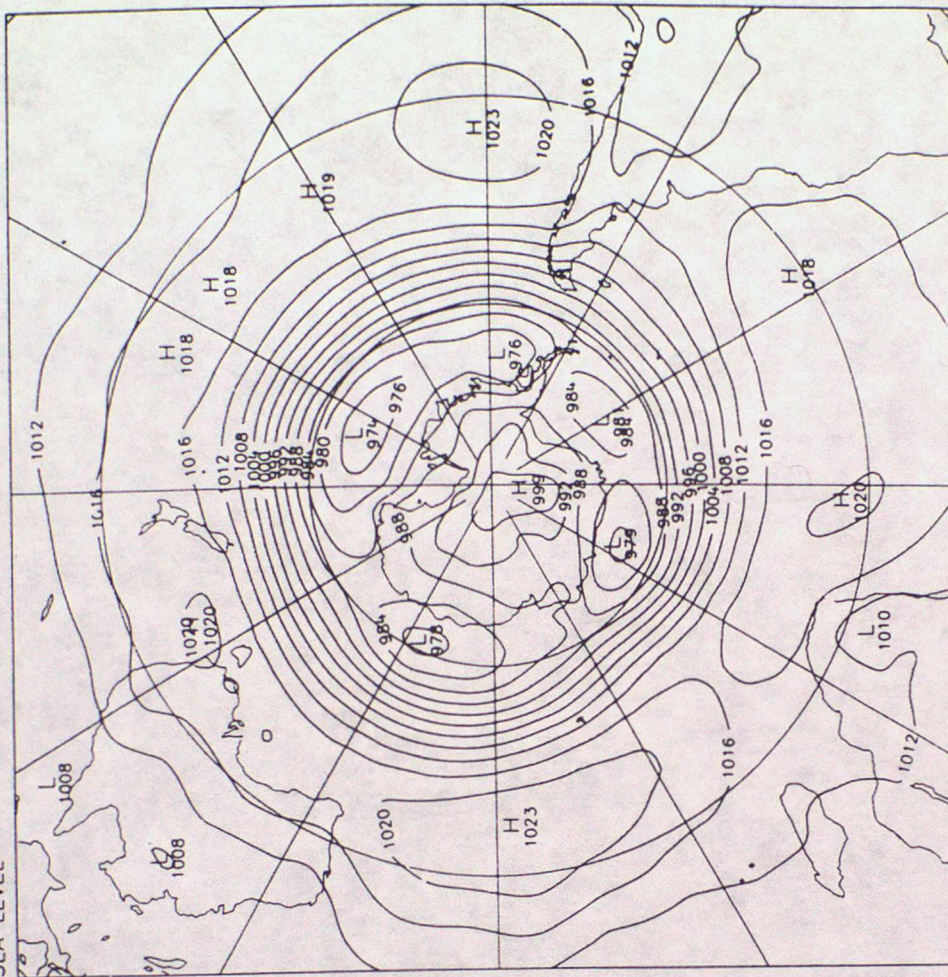
* Fields at 1000 mb are held in the spectral archive. In the grid-point archive this level has been omitted and fields at 950 mb are held instead.

References

- | | | |
|------------------------------|------|--|
| Bell, R.S. and Dickinson, A. | 1987 | The Meteorological Office operational numerical weather prediction system, Meteorological Office Scientific Paper No. 41, Met.O.979, HMSO. |
| Lowther, D. | 1986 | WGDOS Printfile Archive, Operational NWP Scheme, Documentation Paper No. 9.1, Met O 2b, Meteorological Office, Bracknell. |
| Swinbank, R. | 1984 | A system to archive operational analyses for research purposes. Met O 20 Technical Note No. 11/218. Meteorological Office, Bracknell. |

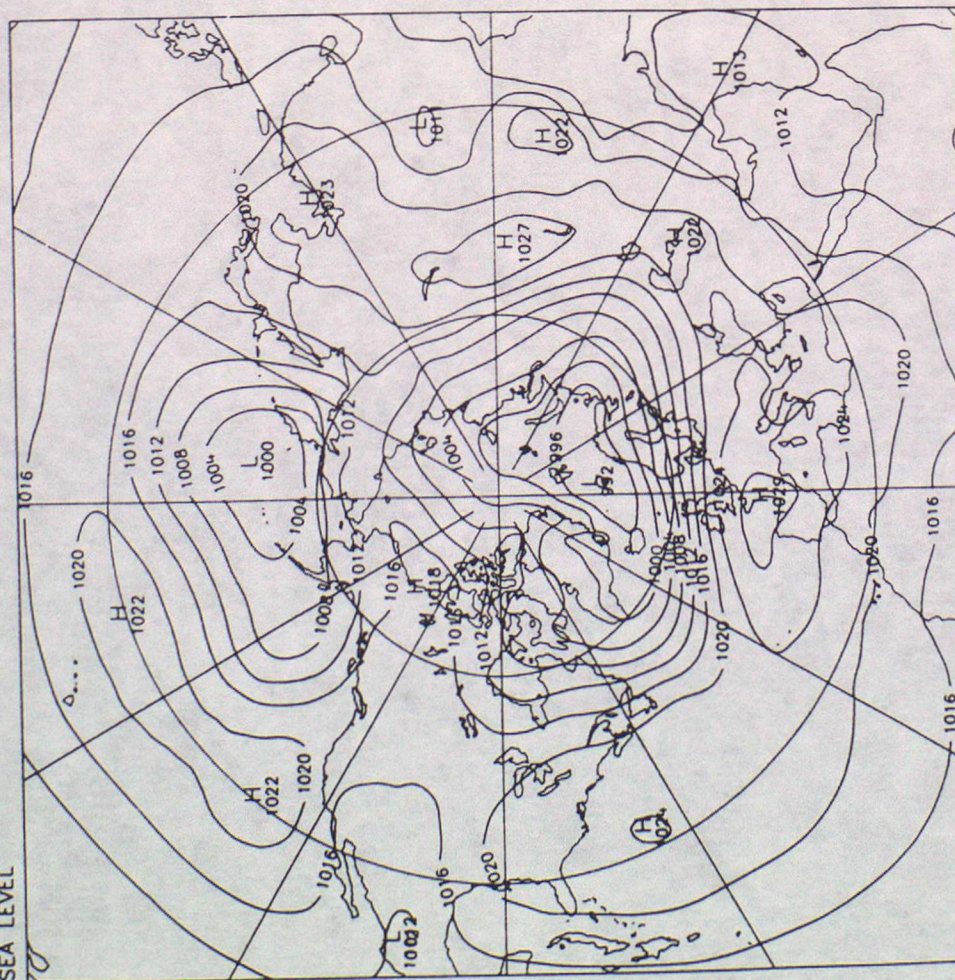
MARCH
1990

OPERATIONAL ARCHIVE MEANS. MARCH 1990
 PMSL
 AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/3/1990 DAY 90
 SEA LEVEL



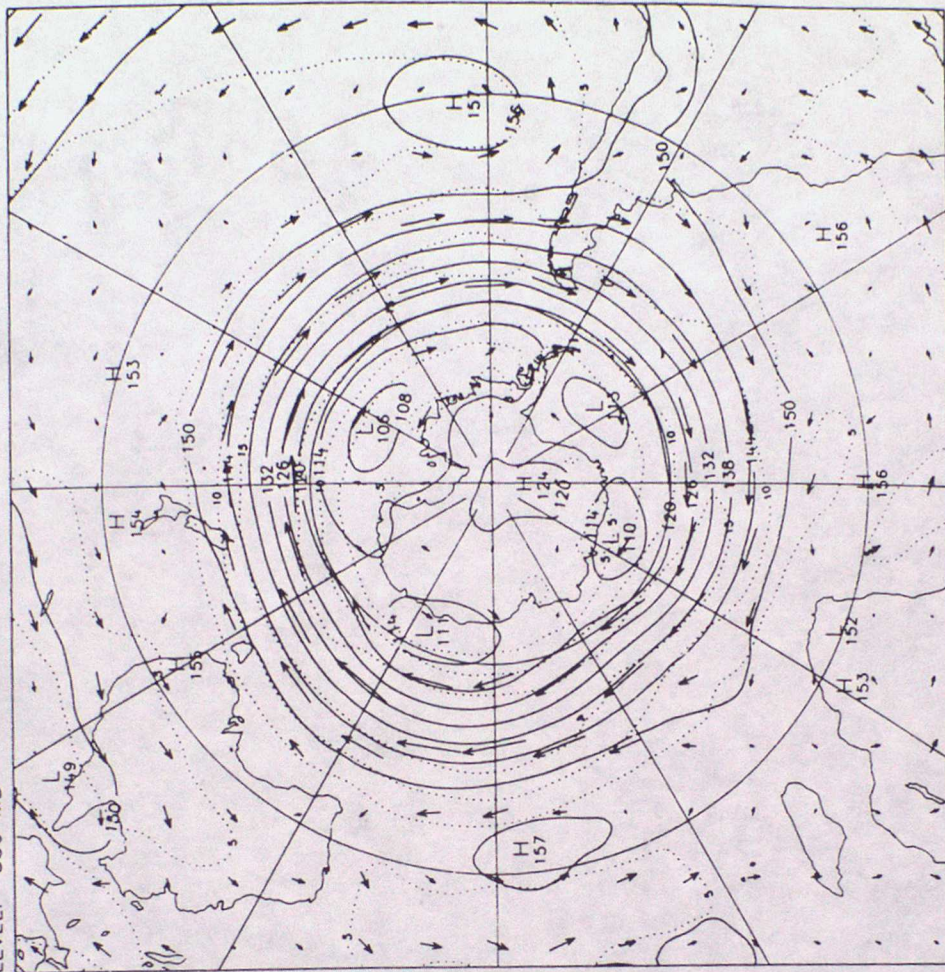
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OPERATIONAL ARCHIVE MEANS. MARCH 1990
 PMSL
 AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/3/1990 DAY 90
 SEA LEVEL



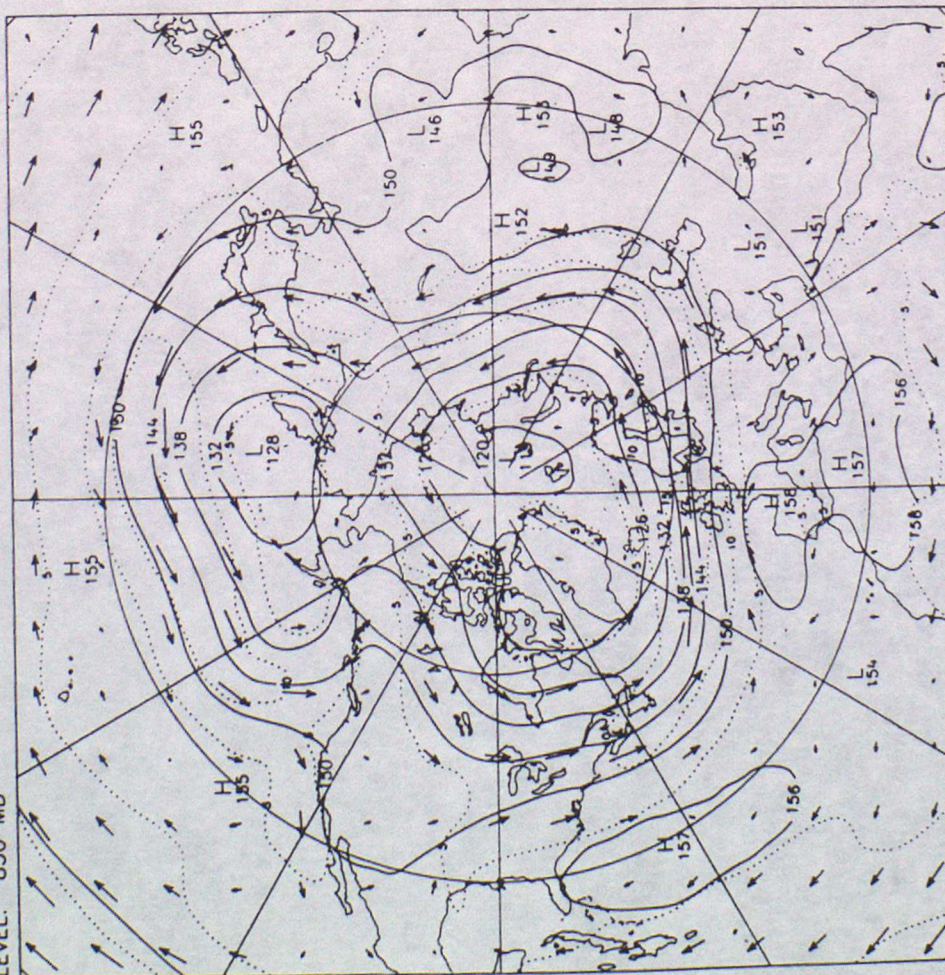
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OPERATIONAL ARCHIVE MEANS. MARCH 1990
 HEIGHTS, WIND ARROWS AND ISOTACHS.
 AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/3/1990 DAY 90
 LEVEL: 850 MB



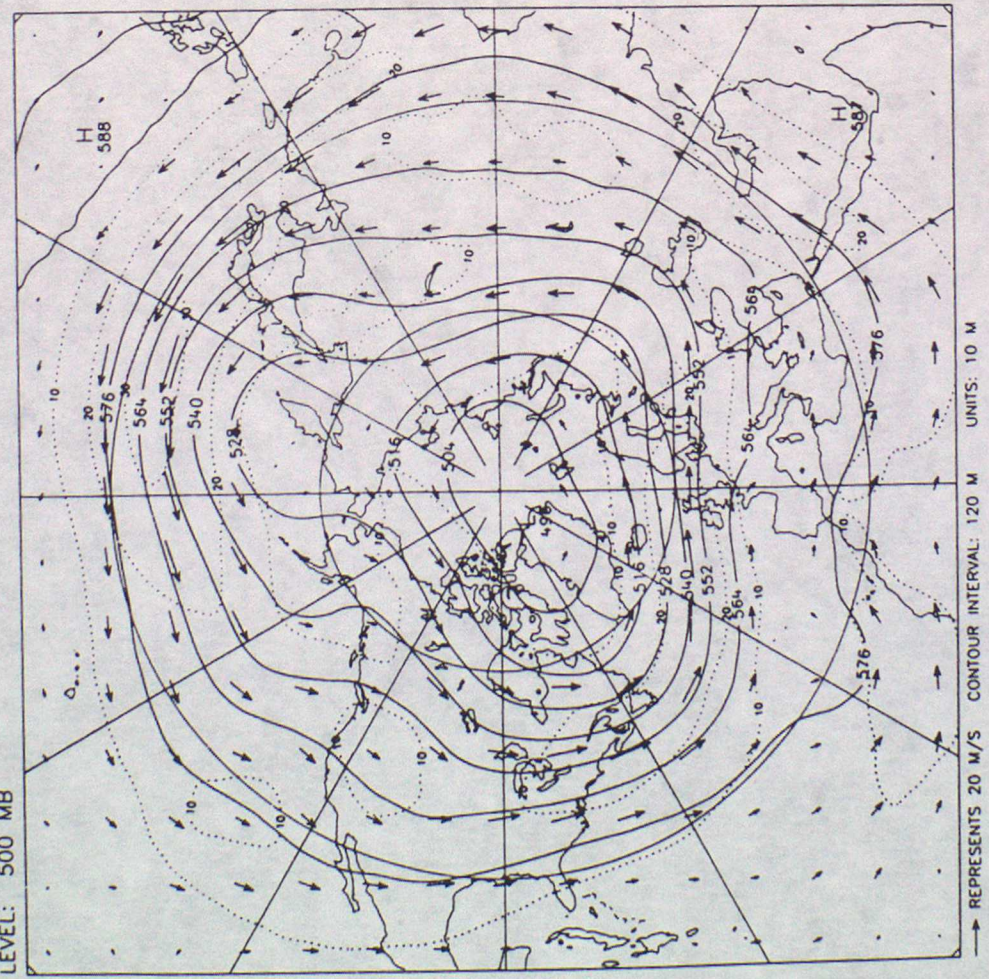
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OPERATIONAL ARCHIVE MEANS. MARCH 1990
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 AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/3/1990 DAY 90
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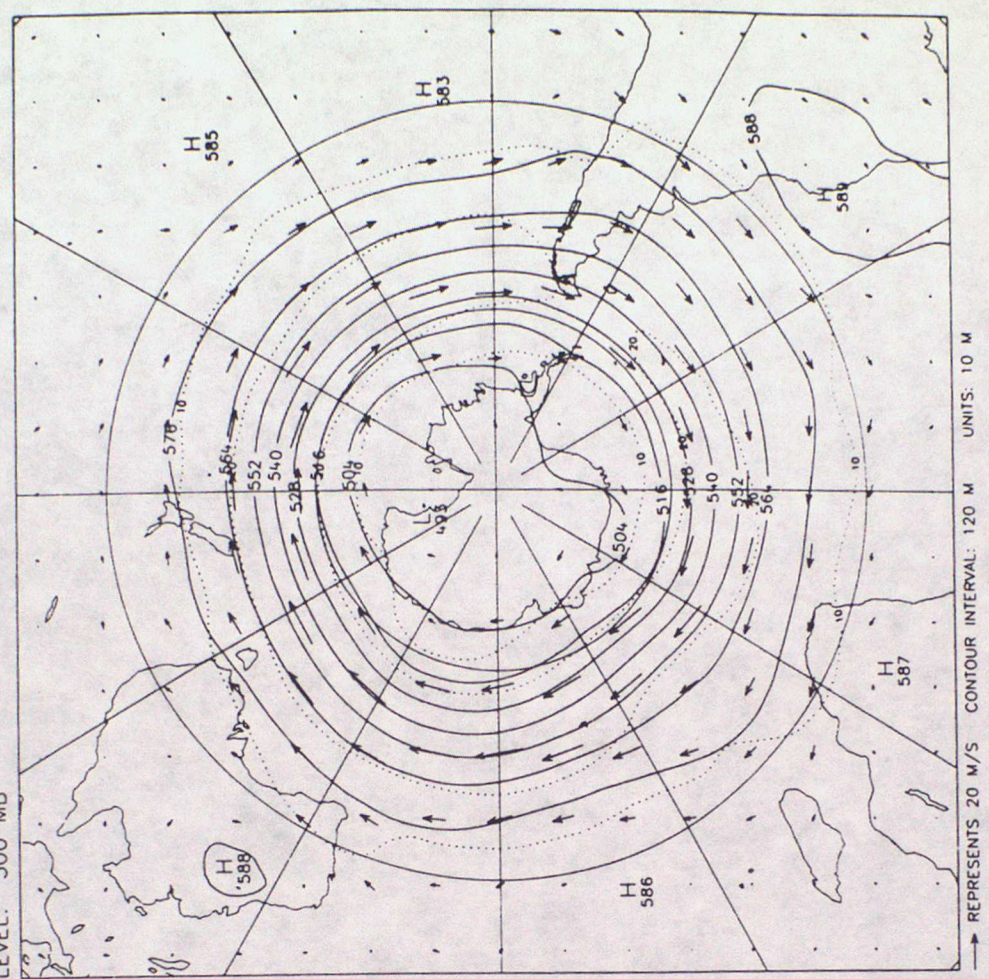


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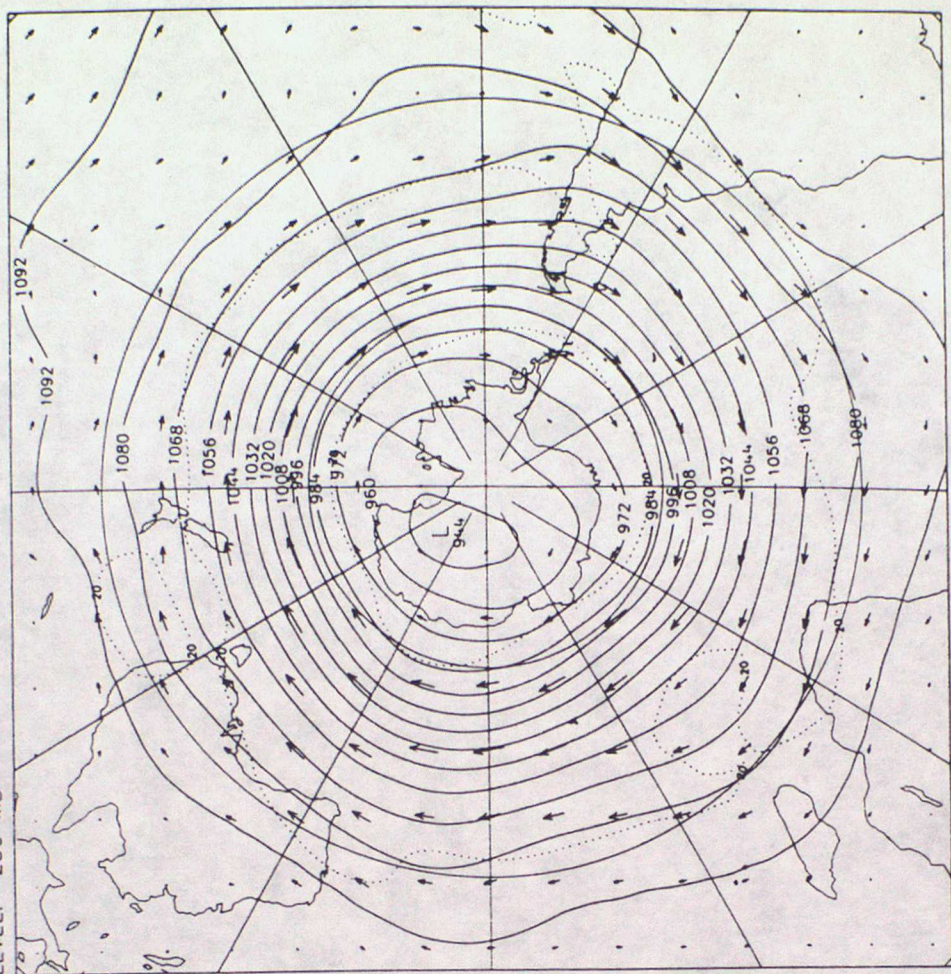
OPERATIONAL ARCHIVE MEANS. MARCH 1990
 HEIGHTS, WIND ARROWS AND ISOTACHS.
 AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/3/1990 DAY 90
 LEVEL: 500 MB



OPERATIONAL ARCHIVE MEANS. MARCH 1990
 HEIGHTS, WIND ARROWS AND ISOTACHS.
 AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/3/1990 DAY 90
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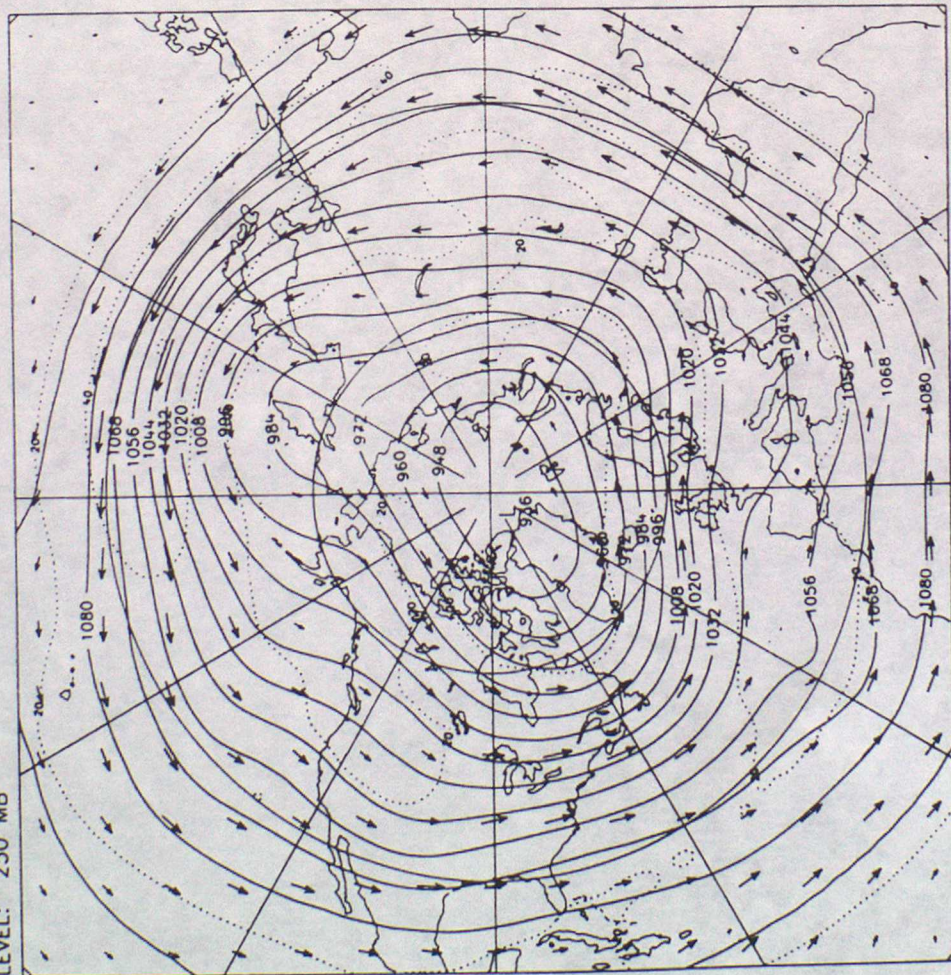


OPERATIONAL ARCHIVE MEANS. MARCH 1990
 HEIGHTS, WIND ARROWS AND ISOTACHS.
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 LEVEL: 250 MB



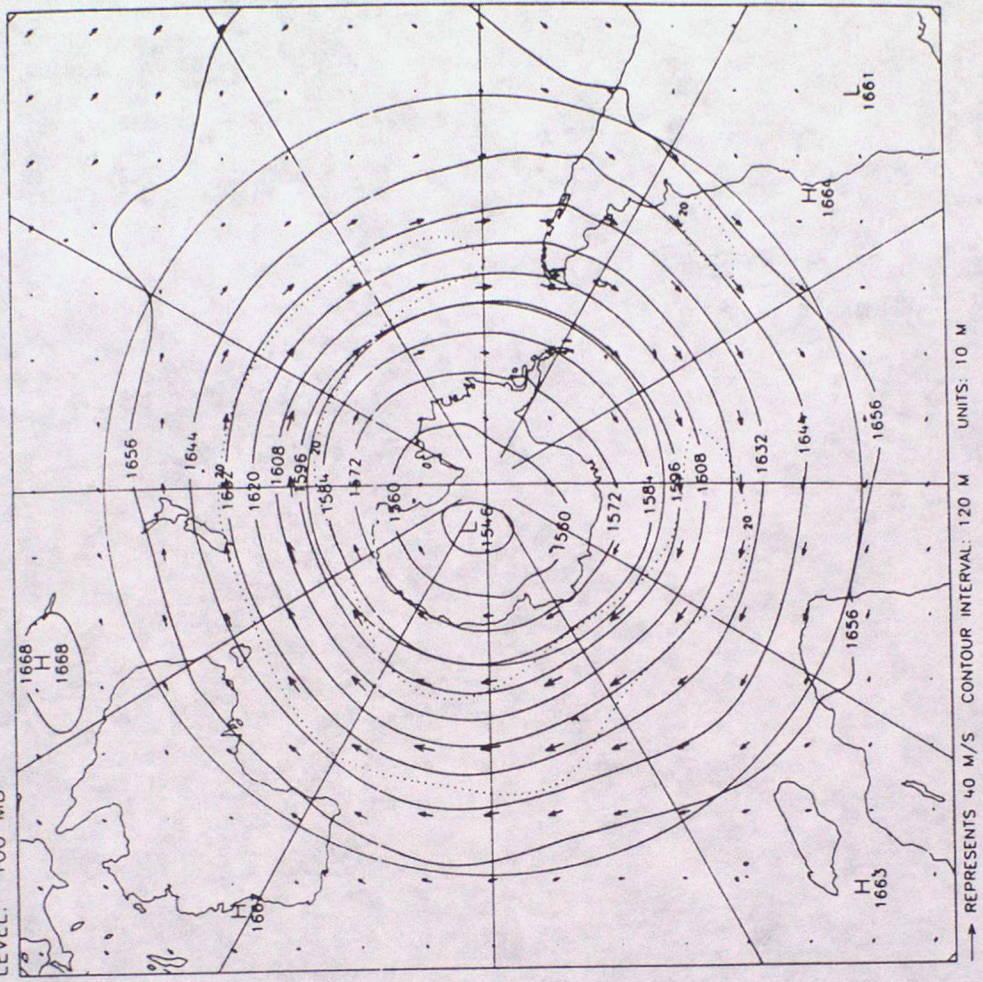
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OPERATIONAL ARCHIVE MEANS. MARCH 1990
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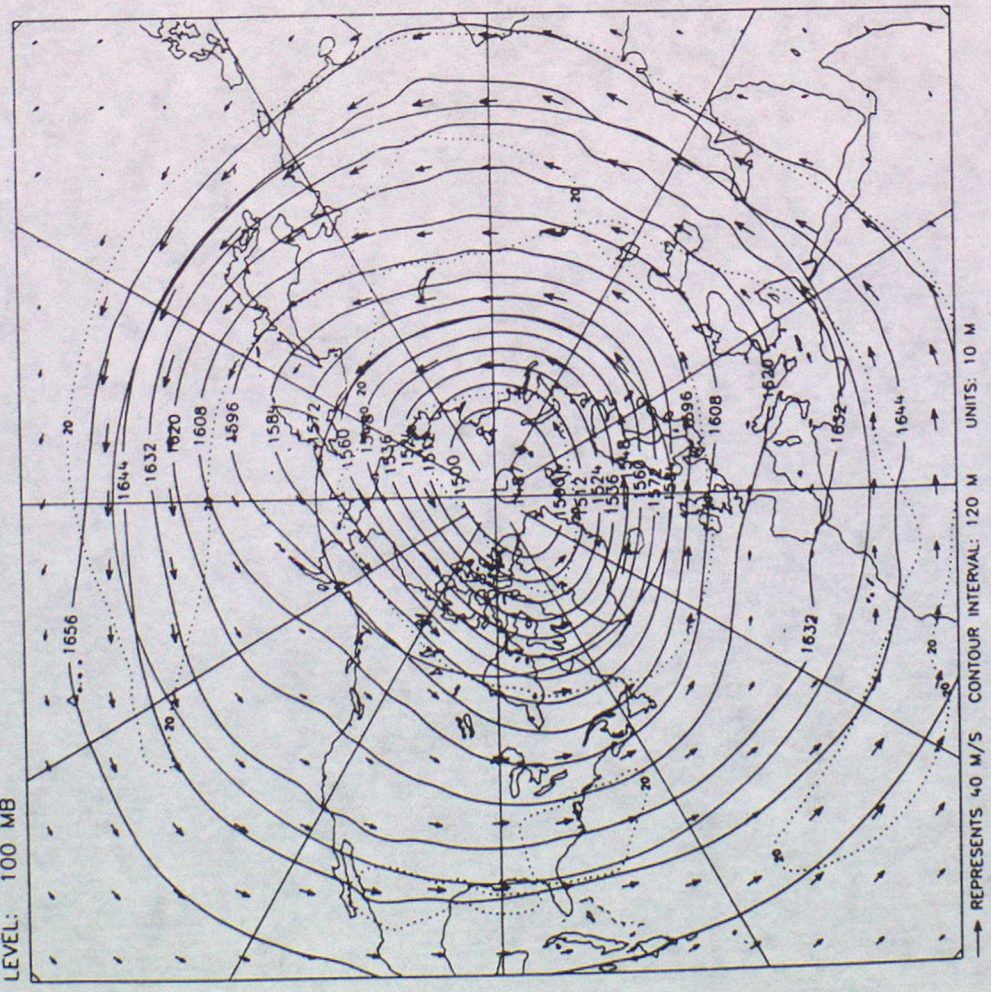


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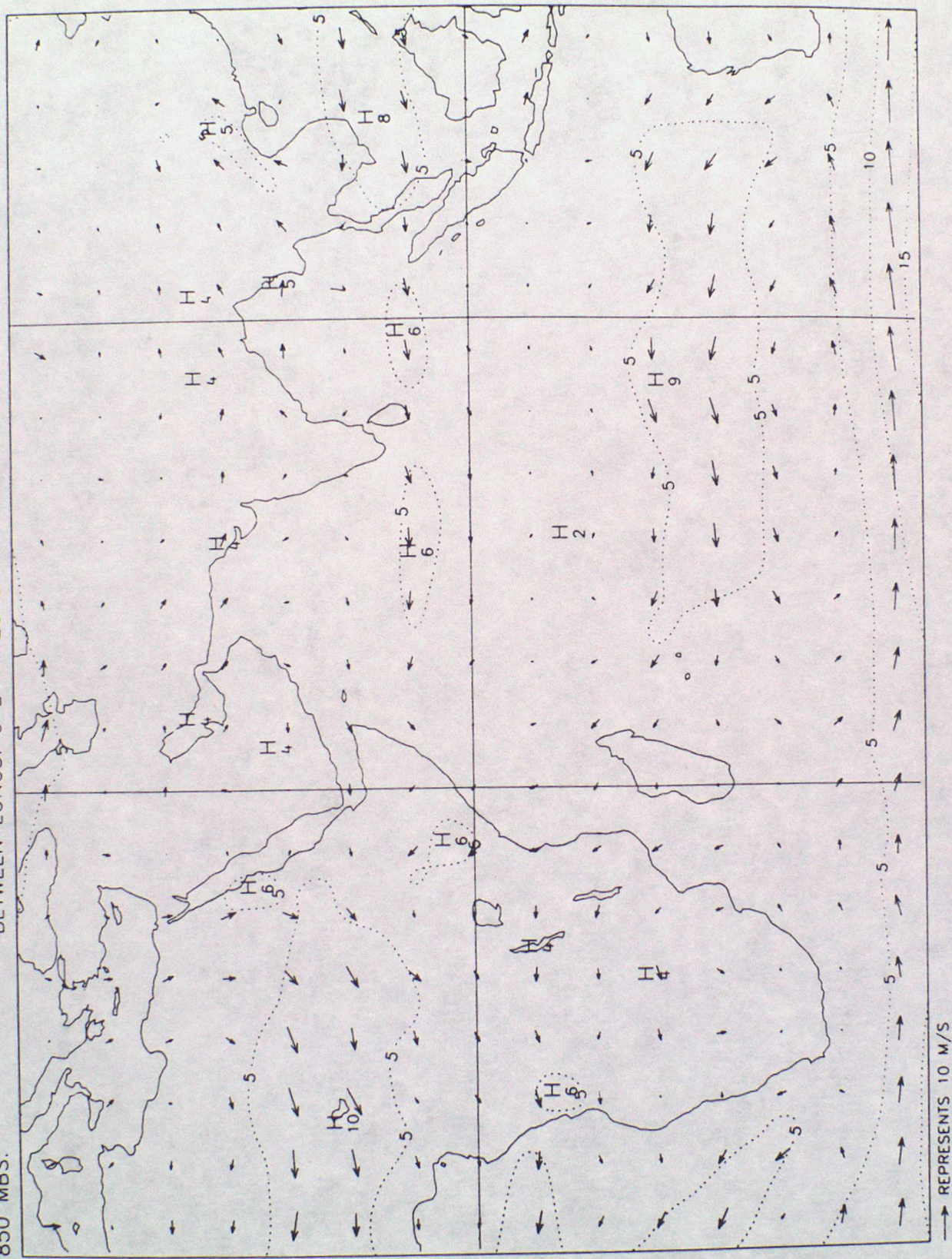
OPERATIONAL ARCHIVE MEANS. MARCH 1990
 HEIGHTS, WIND ARROWS AND ISOTACHS.
 AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/3/1990 DAY 90
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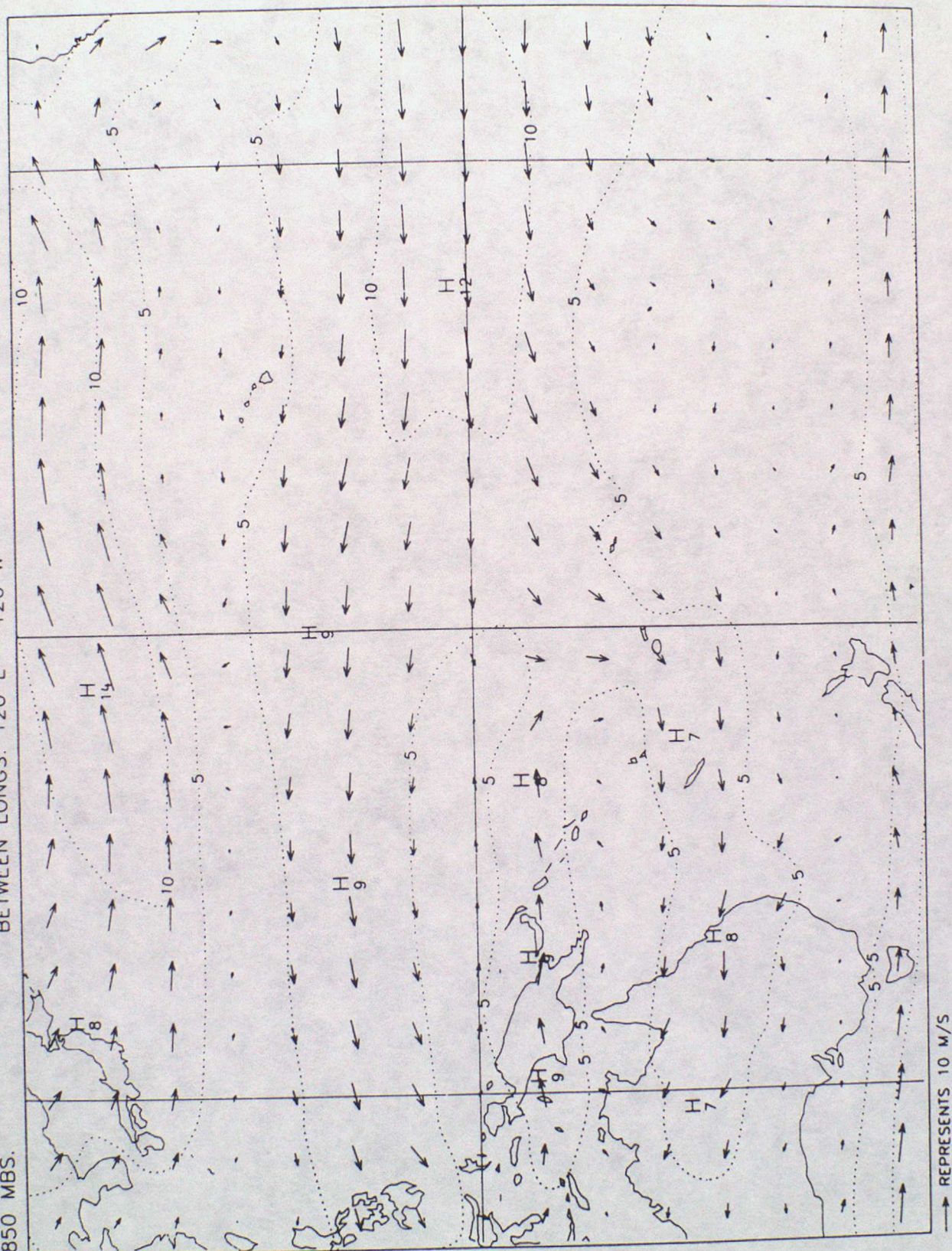
OPERATIONAL ARCHIVE MEANS. MARCH 1990
 HEIGHTS, WIND ARROWS AND ISOTACHS.
 AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/3/1990 DAY 90
 LEVEL: 100 MB



OPERATIONAL ARCHIVE MEANS. MARCH 1990
WIND ARROWS AND ISOTACHS BETWEEN LATS. 45 N - 45 S.
AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/3/1990 DAY 90
BETWEEN LONGS. 0 E - 120 E
850 MBS.

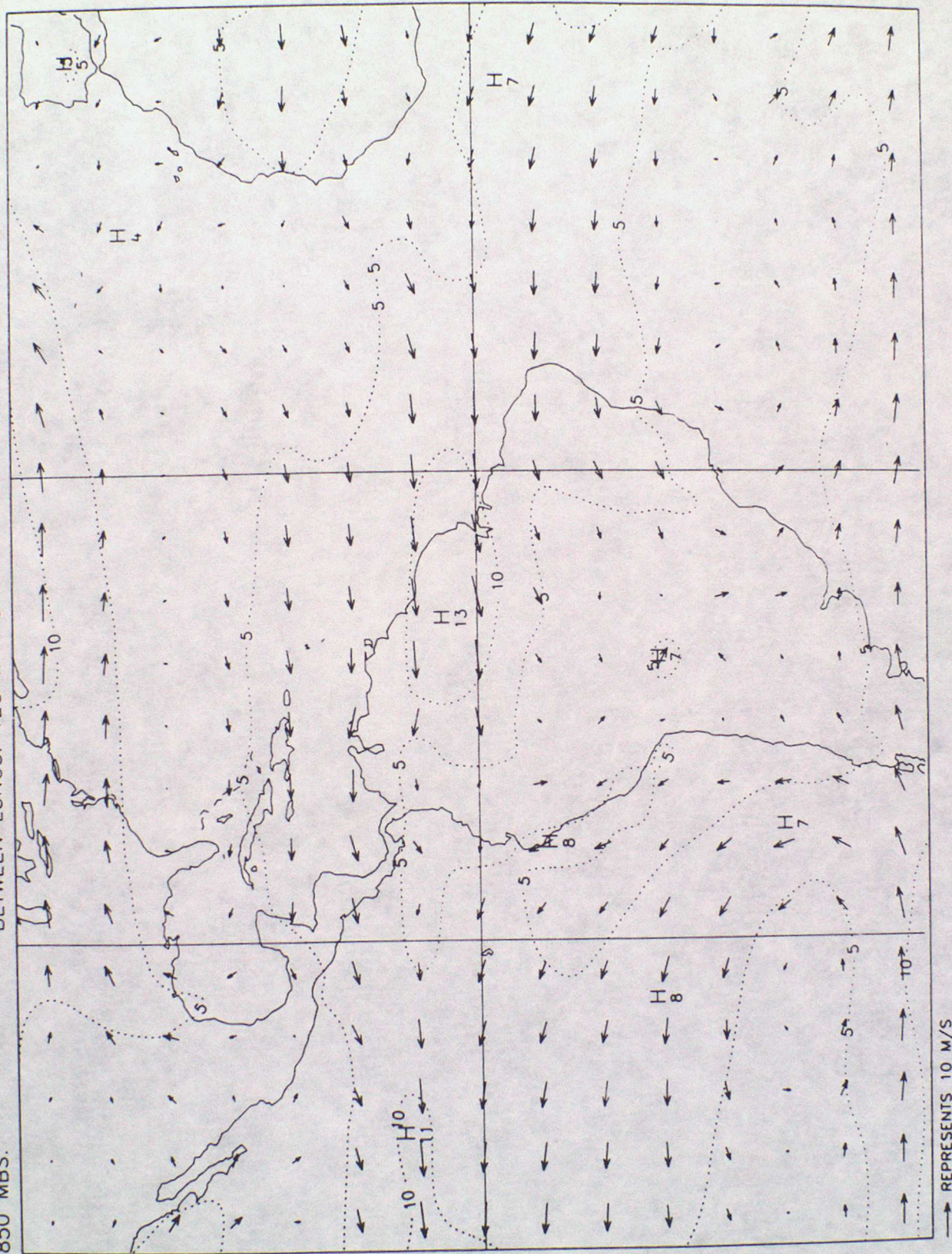


OPERATIONAL ARCHIVE MEANS. MARCH 1990
 WIND ARROWS AND ISOTACHS BETWEEN LATS. 45°N - 45°S.
 AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/3/1990 DAY 90
 BETWEEN LONGS. 120°E - 120°W
 850 MBS.



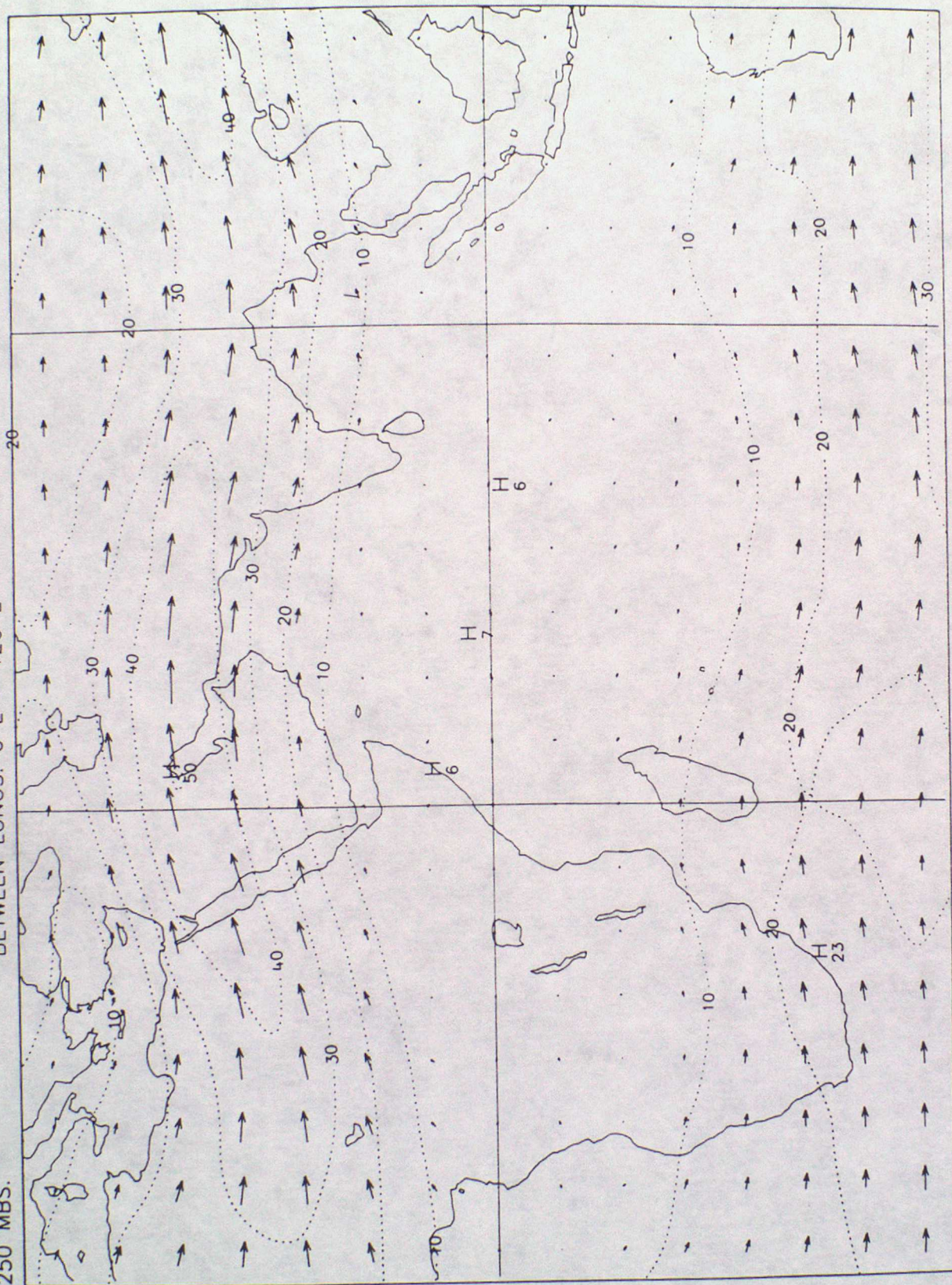
→ REPRESENTS 10 M/S

OPERATIONAL ARCHIVE MEANS. MARCH 1990
WIND ARROWS AND ISOTACHS BETWEEN LATS. 45 N - 45 S.
AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/3/1990 DAY 90
BETWEEN LONGS. 120 W - 0 W
850 MB.



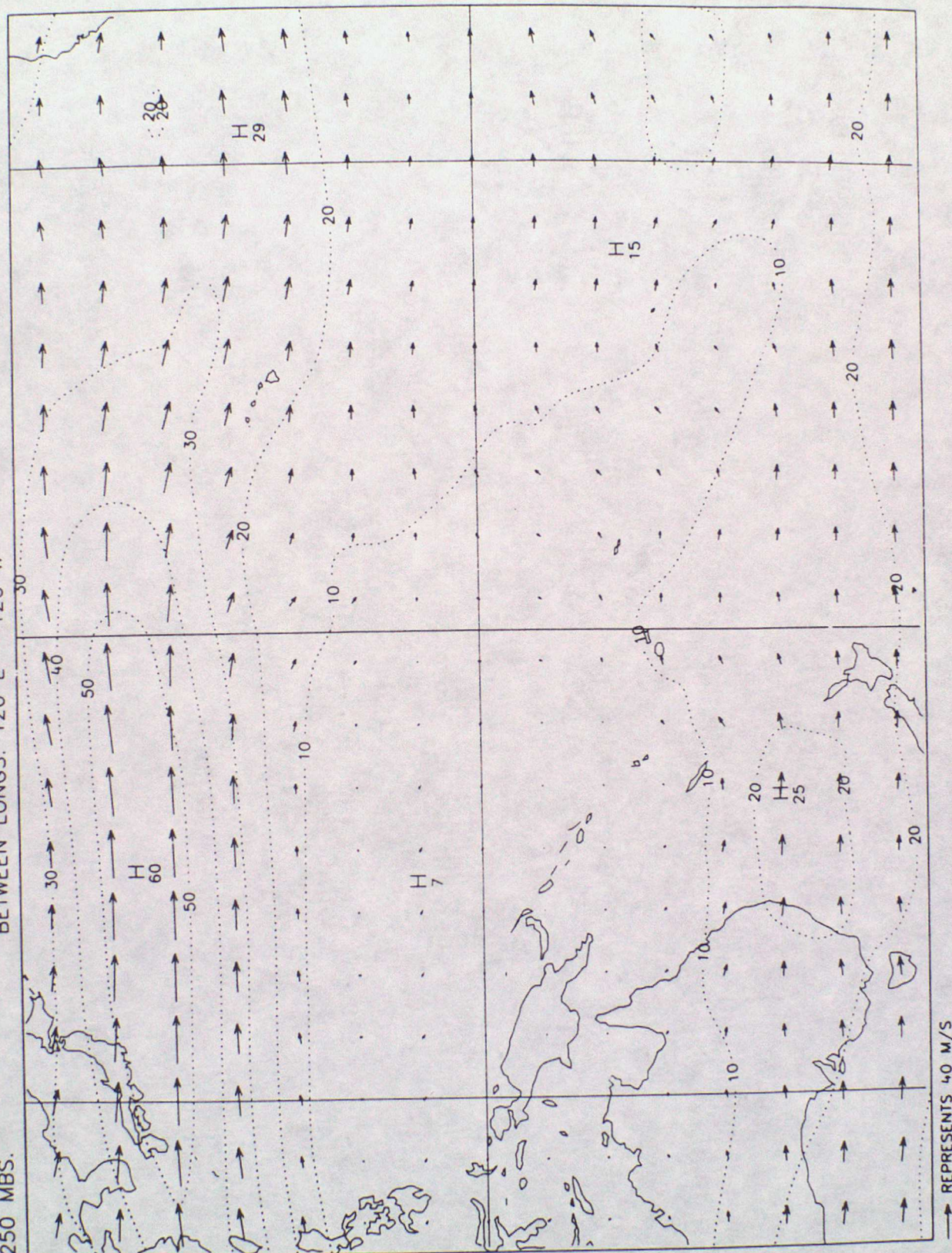
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 AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/3/1990 DAY 90
 BETWEEN LONGS. 0 E - 120 E
 250 MBS.



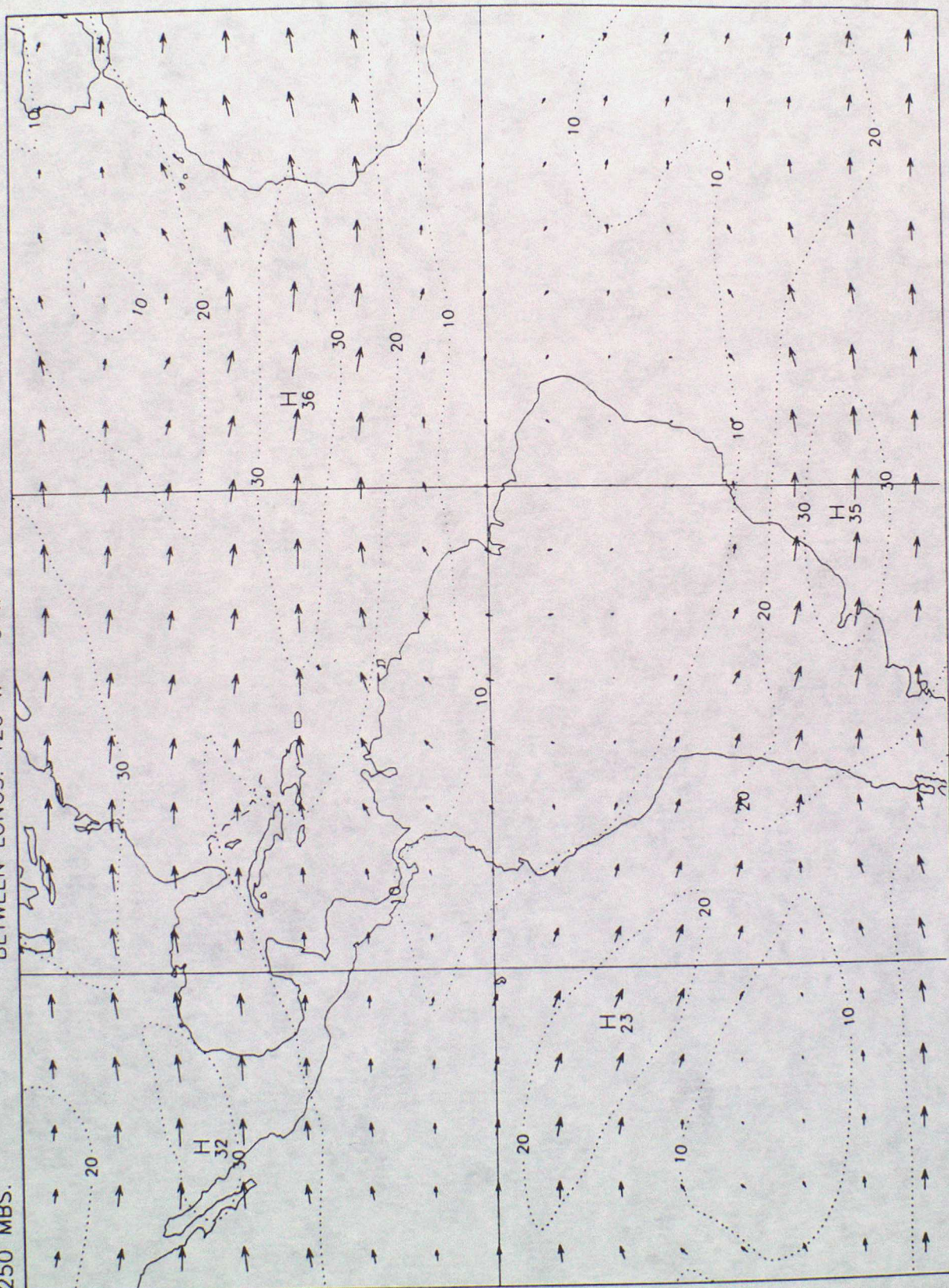
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OPERATIONAL ARCHIVE MEANS. MARCH 1990
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 AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/3/1990 DAY 90
 BETWEEN LONGS. 120 E - 120 W
 250 MBS.



→ REPRESENTS 40 M/S

OPERATIONAL ARCHIVE MEANS. MARCH 1990
 WIND ARROWS AND ISOTACHS BETWEEN LATS. 45 N - 45 S.
 AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/3/1990 DAY 90
 BETWEEN LONGS. 120 W - 0 W
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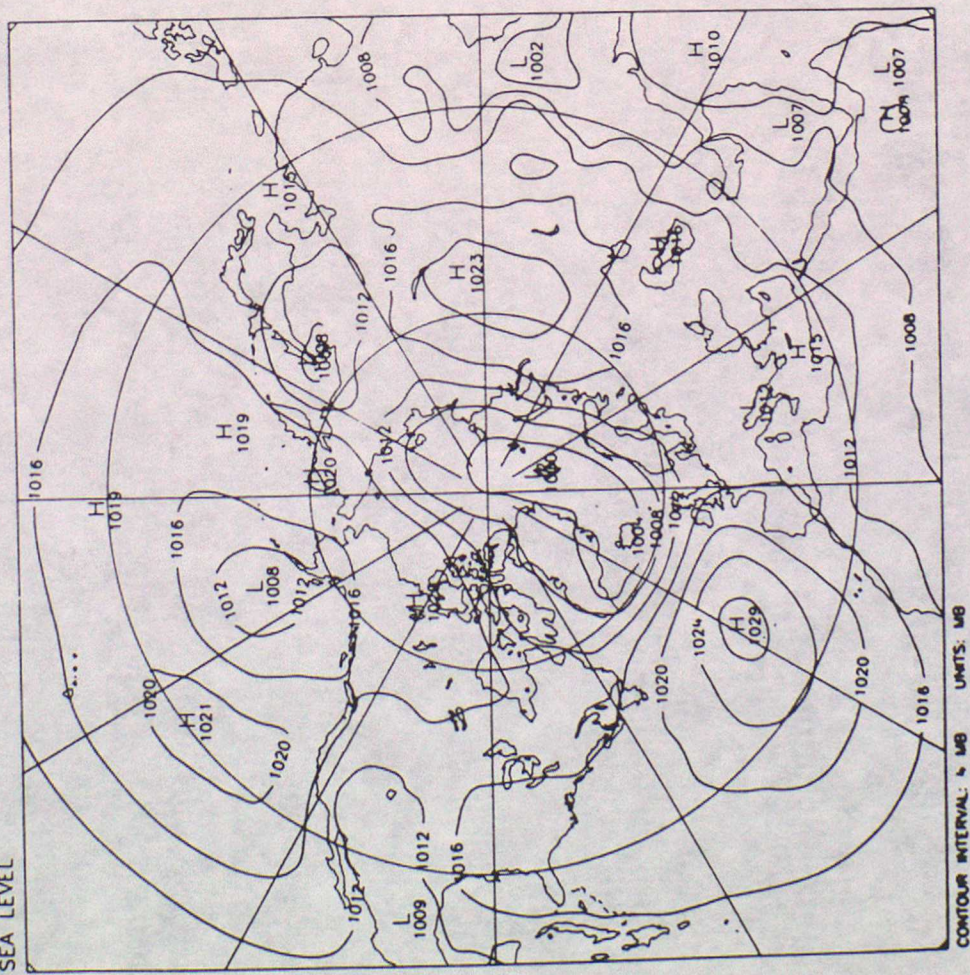


→ REPRESENTS 40 M/S

APRIL
1990

OPERATIONAL ARCHIVE MEANS. APRIL 1990

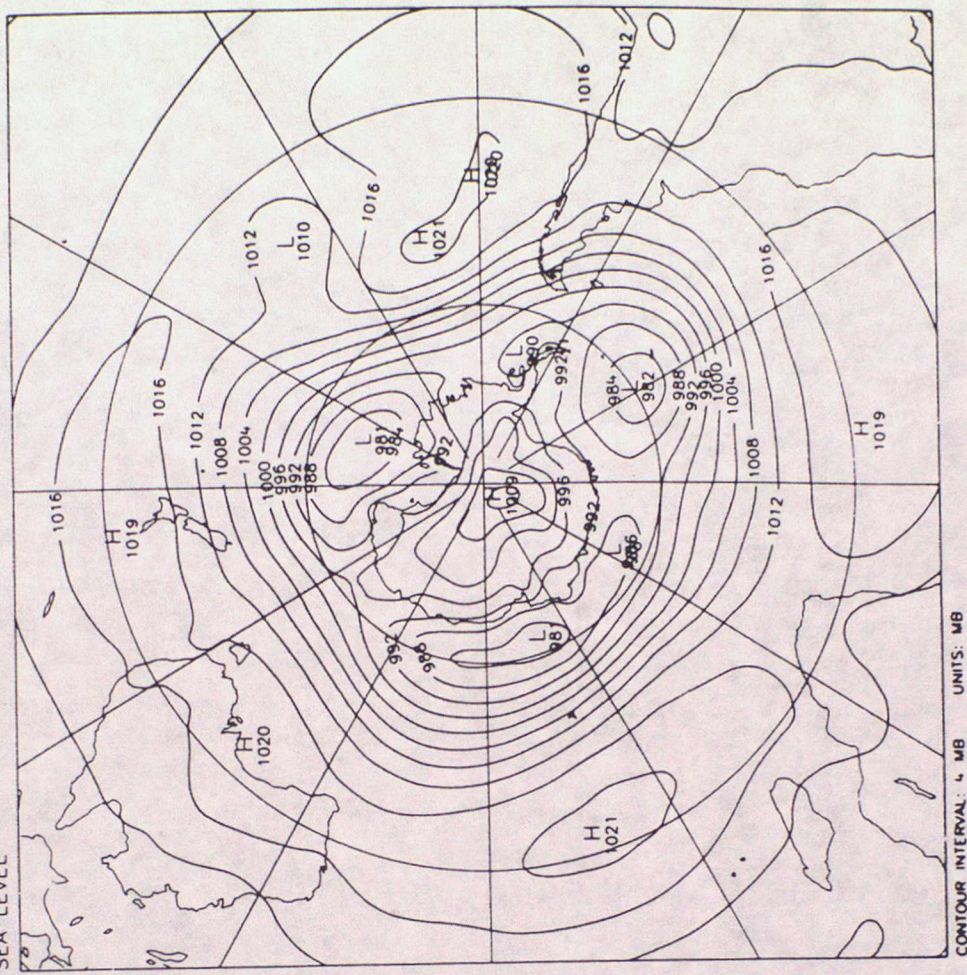
PMSL
AVERAGE FROM 0Z ON 1/4/1990 DAY 91 TO 12Z ON 30/4/1990 DAY 120
SEA LEVEL



CONTOUR INTERVAL: 4 MB UNITS: MB

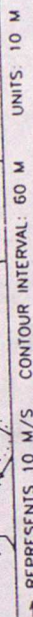
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AVERAGE FROM 0Z ON 1/4/1990 DAY 91 TO 12Z ON 30/4/1990 DAY 120
SEA LEVEL

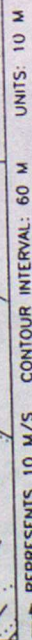


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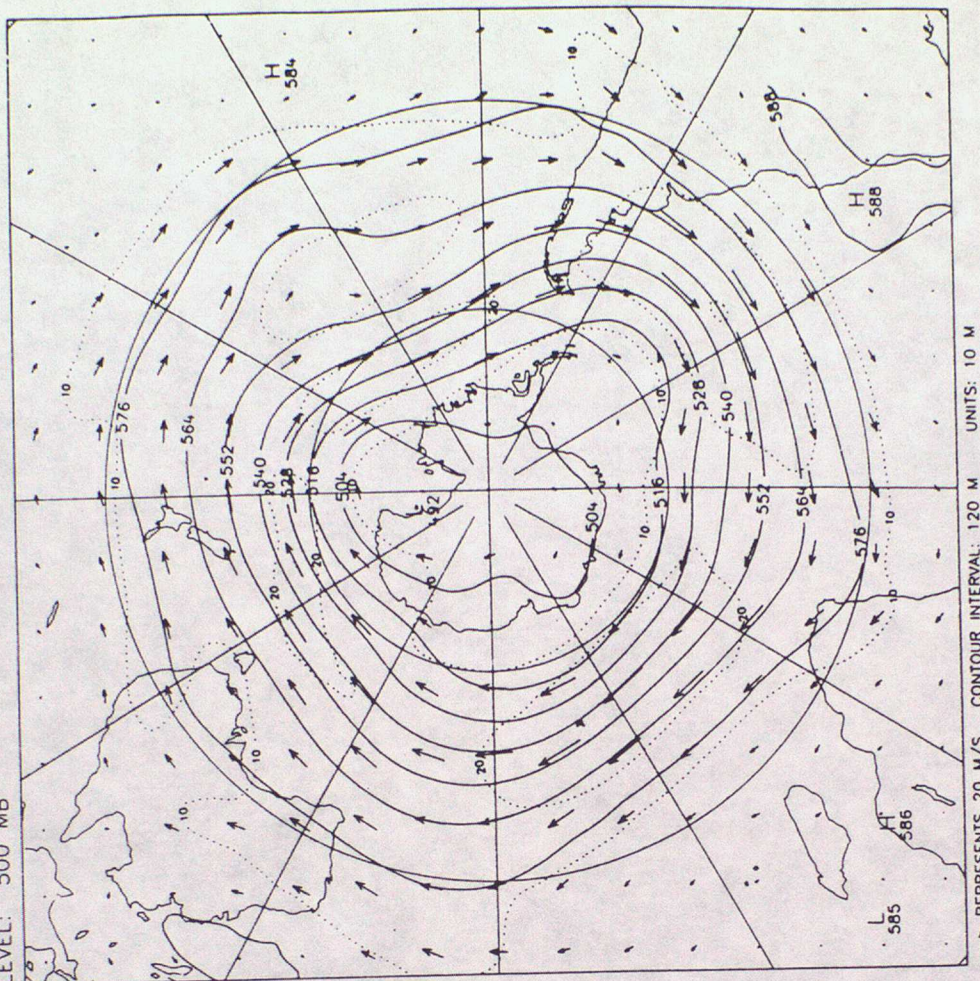
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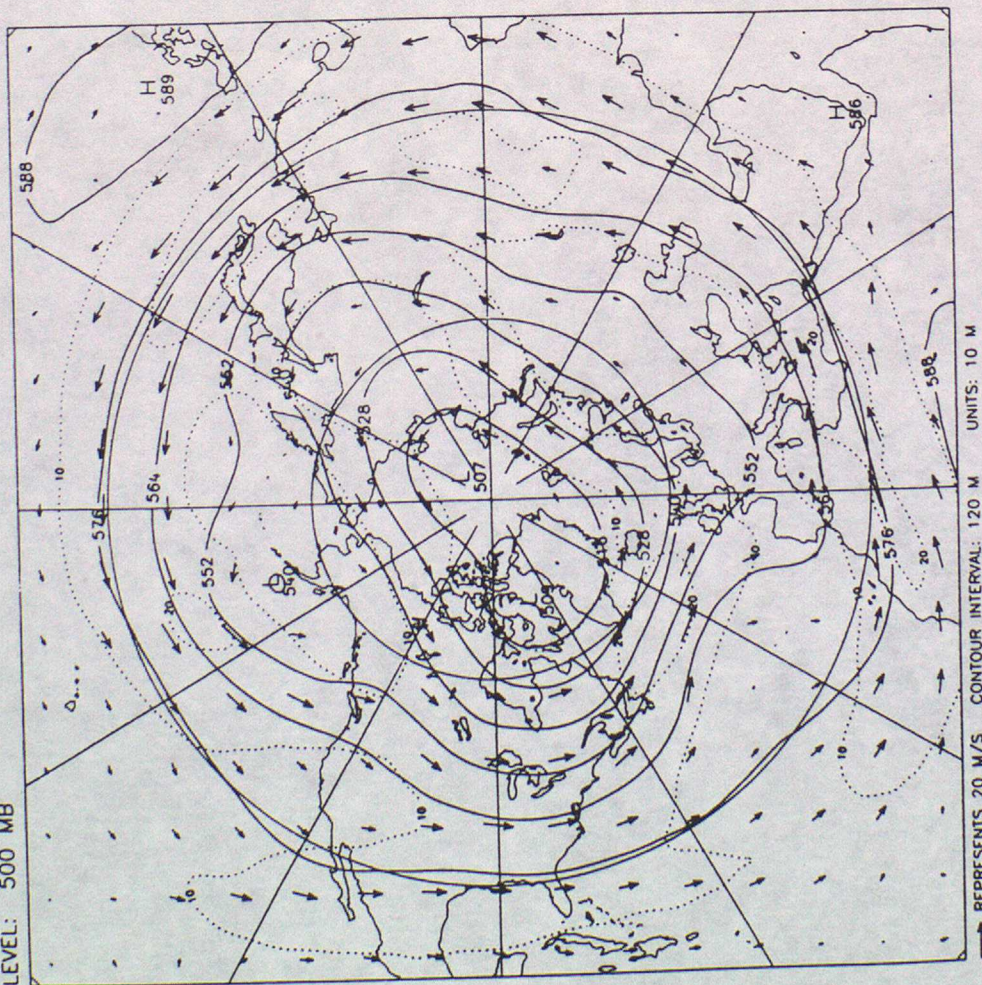
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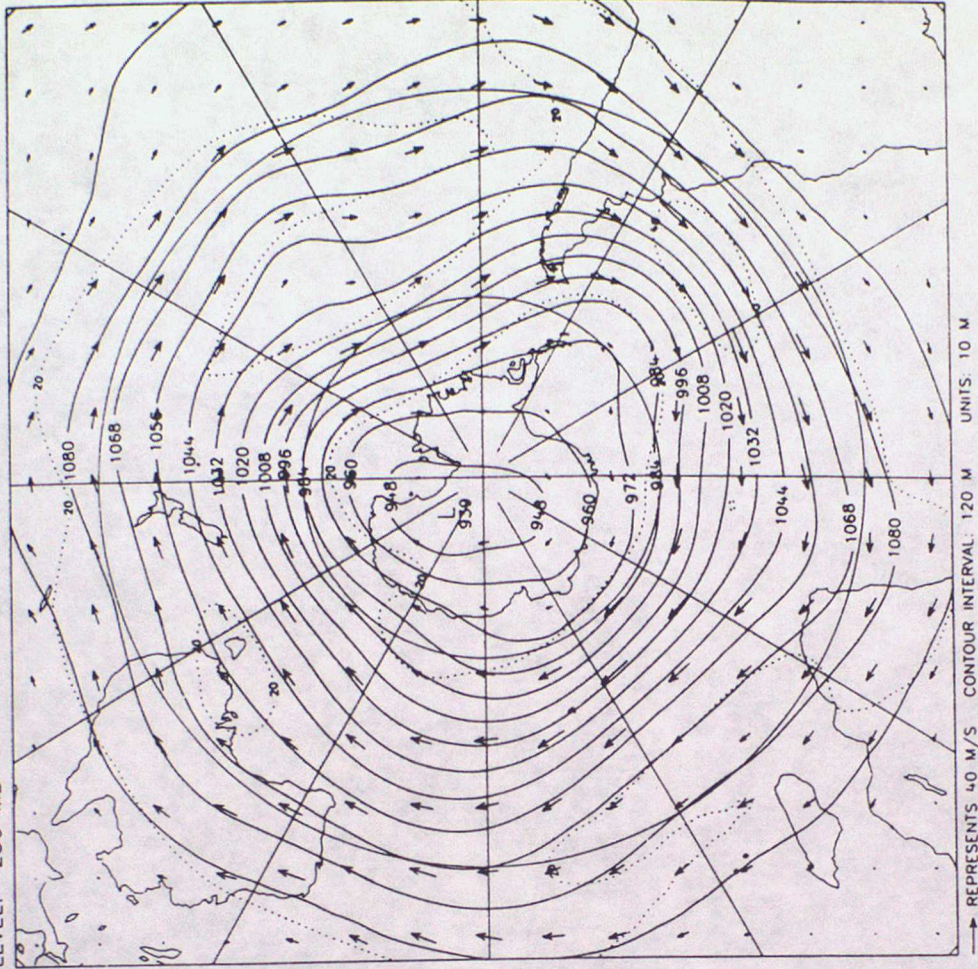
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 HEIGHTS, WIND ARROWS AND ISOTACHS.
 AVERAGE FROM 0Z ON 1/4/1990 DAY 91 TO 12Z ON 30/4/1990 DAY 120
 LEVEL: 500 MB



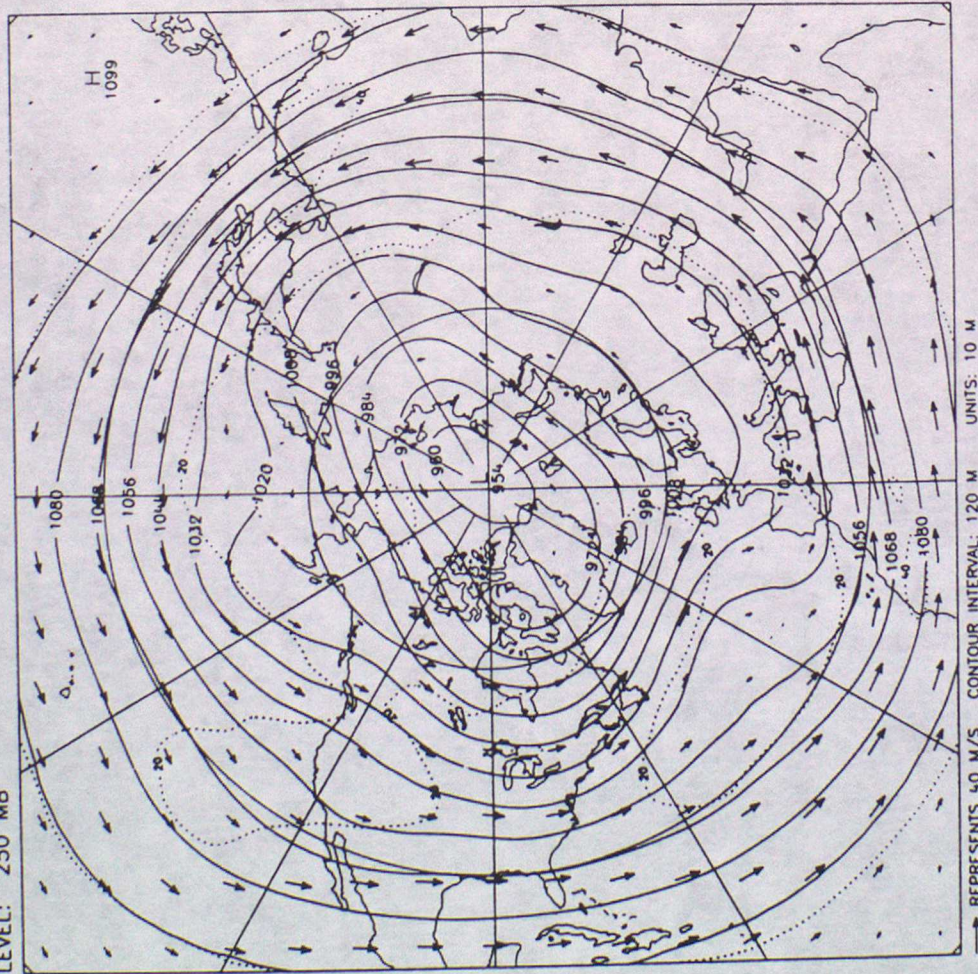
OPERATIONAL ARCHIVE MEANS. APRIL 1990
 HEIGHTS, WIND ARROWS AND ISOTACHS.
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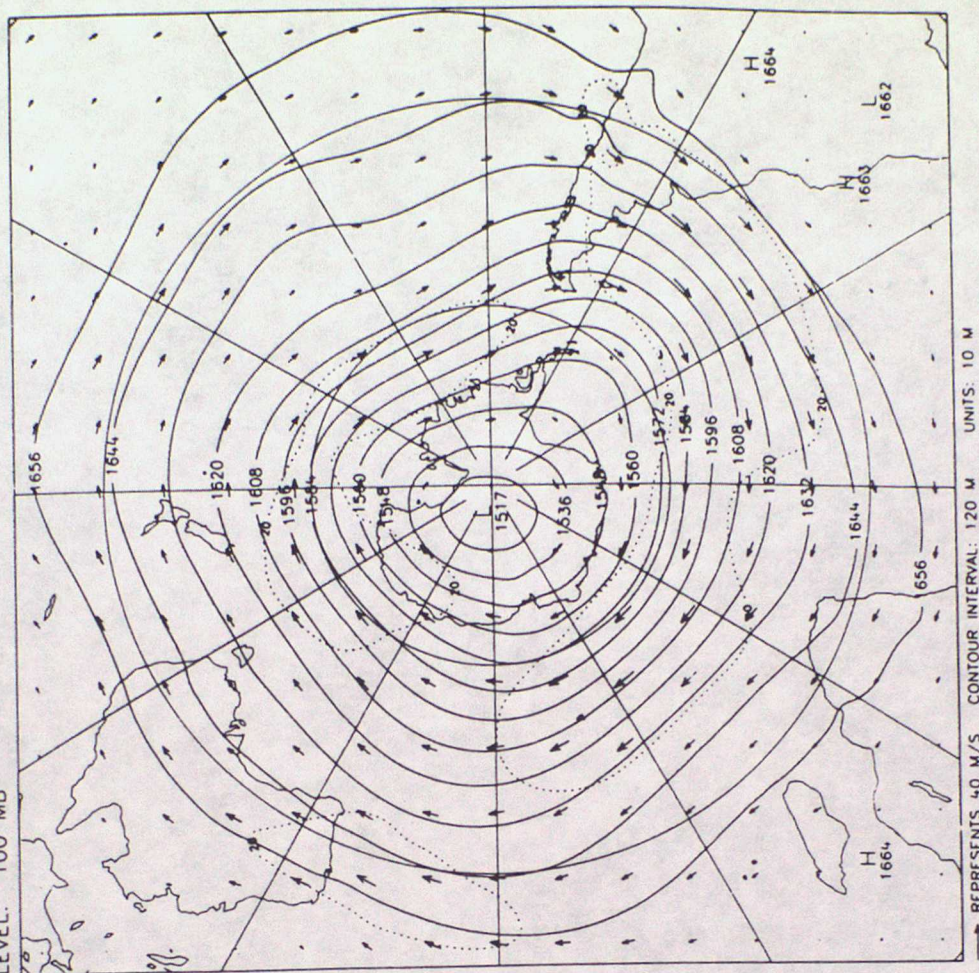
OPERATIONAL ARCHIVE MEANS. APRIL 1990
 HEIGHTS, WIND ARROWS AND ISOTACHS.
 AVERAGE FROM 0Z ON 1/4/1990 DAY 91 TO 12Z ON 30/4/1990 DAY 120
 LEVEL: 250 MB



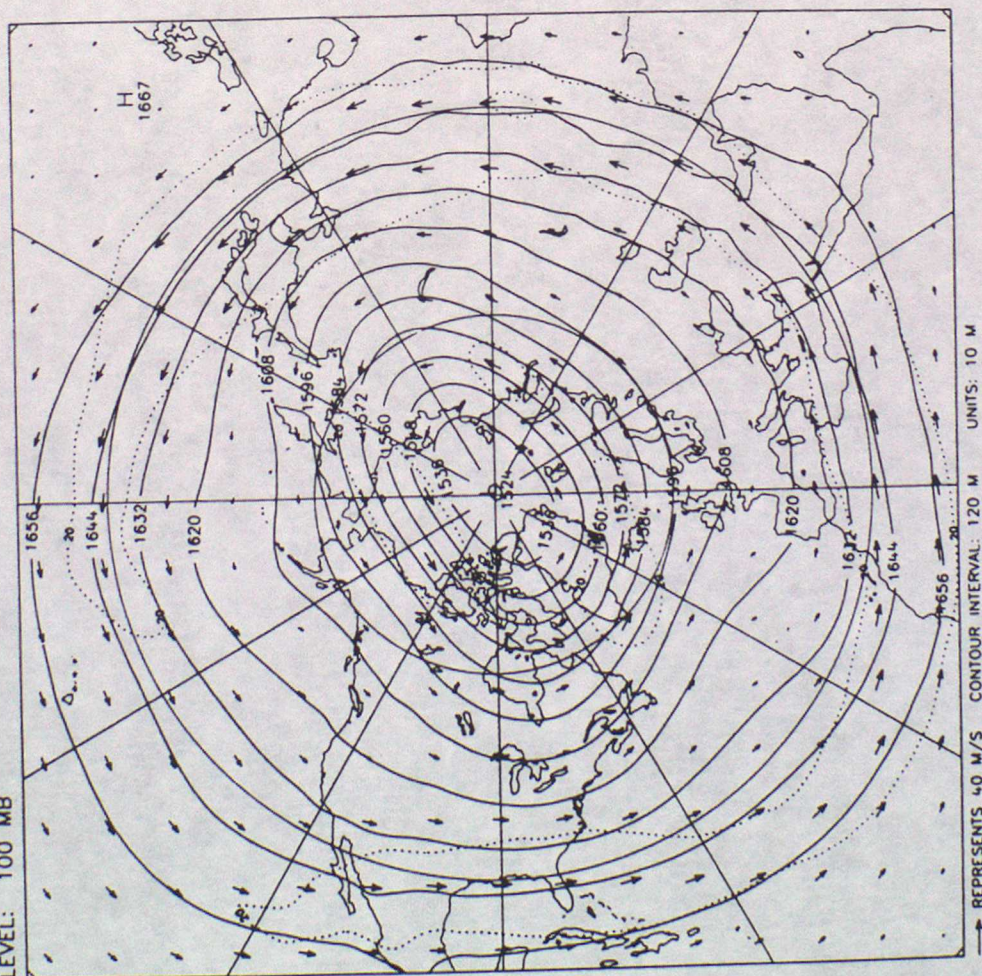
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 HEIGHTS, WIND ARROWS AND ISOTACHS.
 AVERAGE FROM 0Z ON 1/4/1990 DAY 91 TO 12Z ON 30/4/1990 DAY 120
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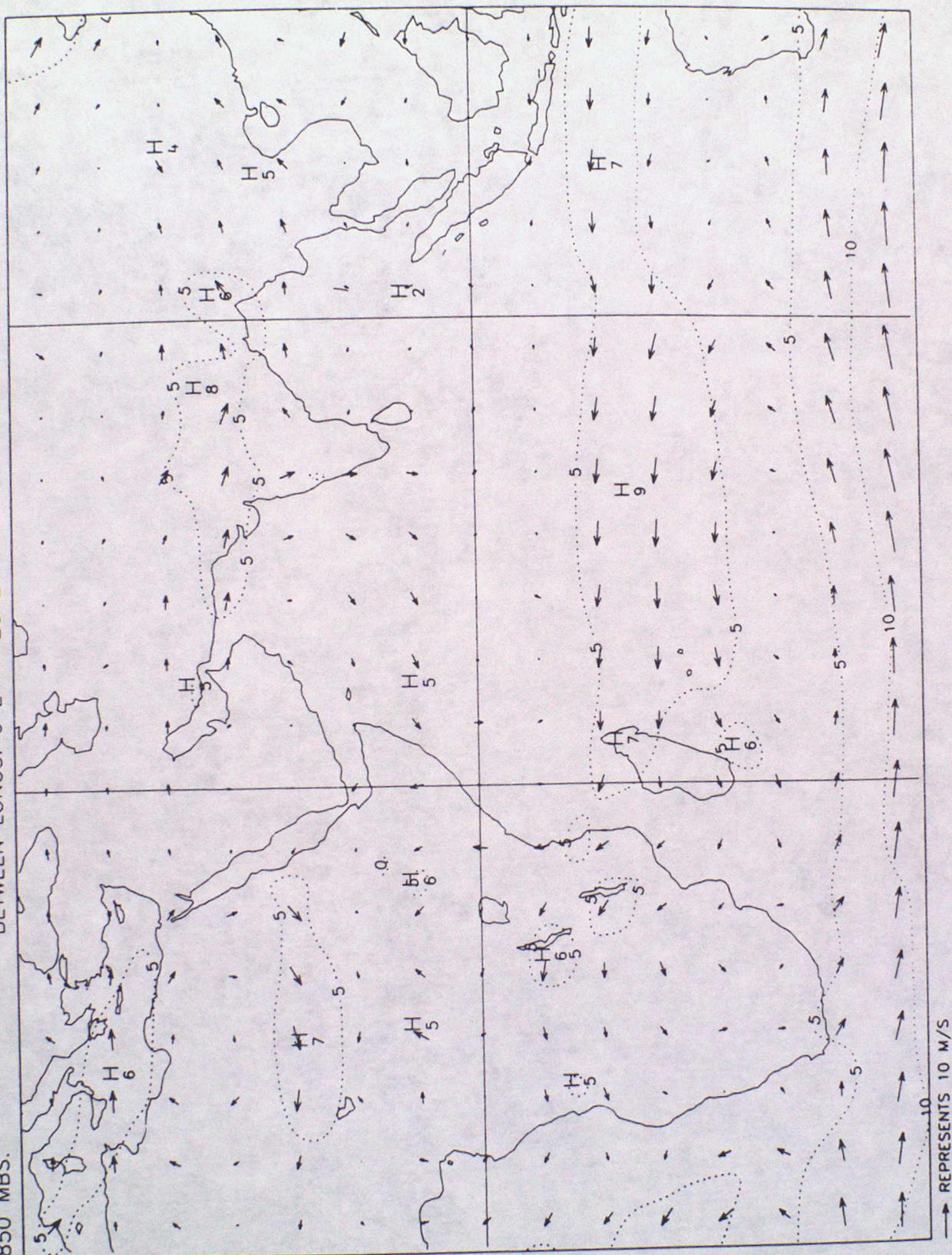
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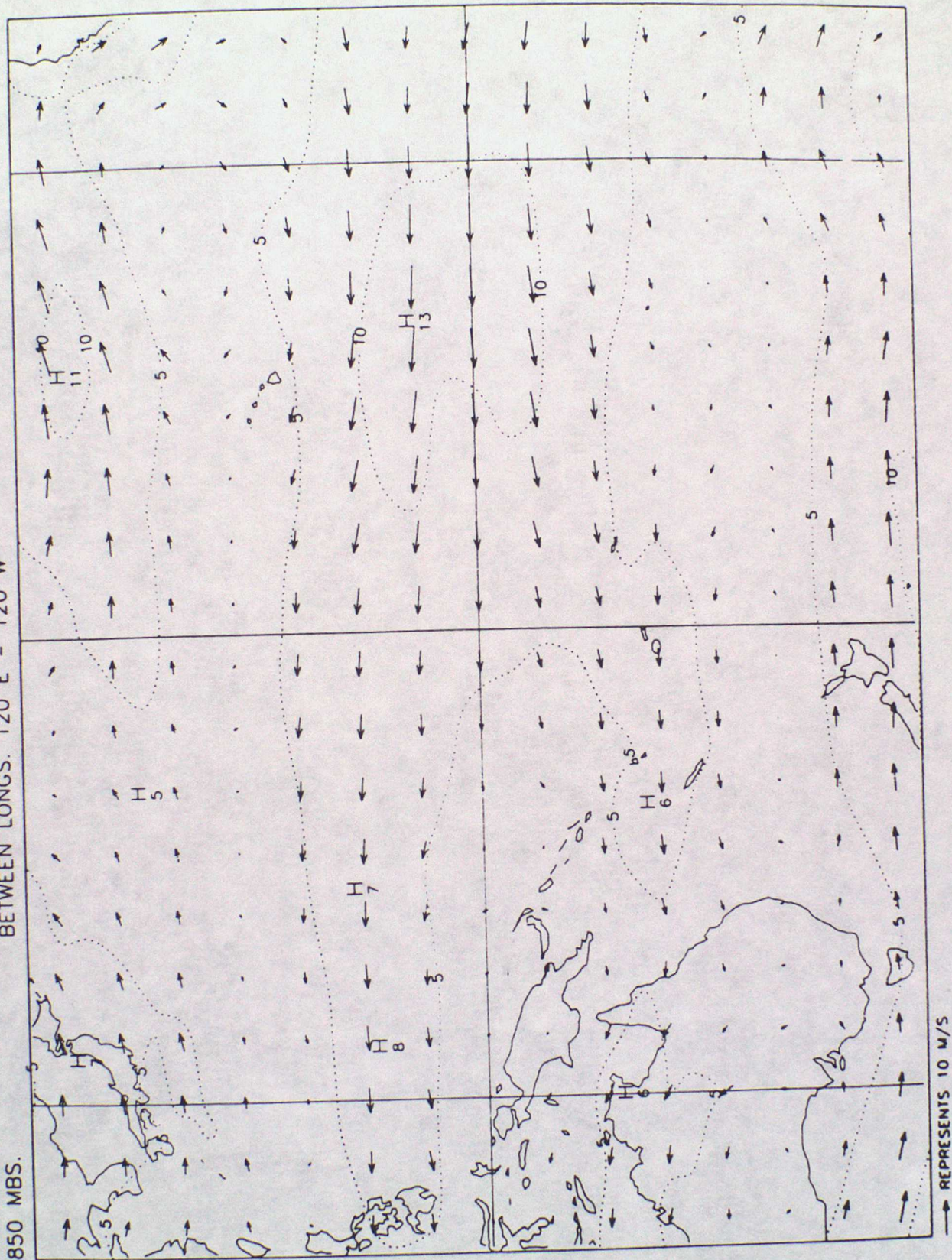
OPERATIONAL ARCHIVE MEANS. APRIL 1990
 HEIGHTS, WIND ARROWS AND ISOTACHS.
 AVERAGE FROM 0Z ON 1/4/1990 DAY 91 TO 12Z ON 30/4/1990 DAY 120
 LEVEL: 100 MB



OPERATIONAL ARCHIVE MEANS. APRIL 1990
 WIND ARROWS AND ISOTACHS BETWEEN LATS. 45 N - 45 S.
 AVERAGE FROM 0Z ON 1/4/1990 DAY 91 TO 12Z ON 30/4/1990 DAY 120
 BETWEEN LONGS. 0 E - 120 E
 850 MBS.

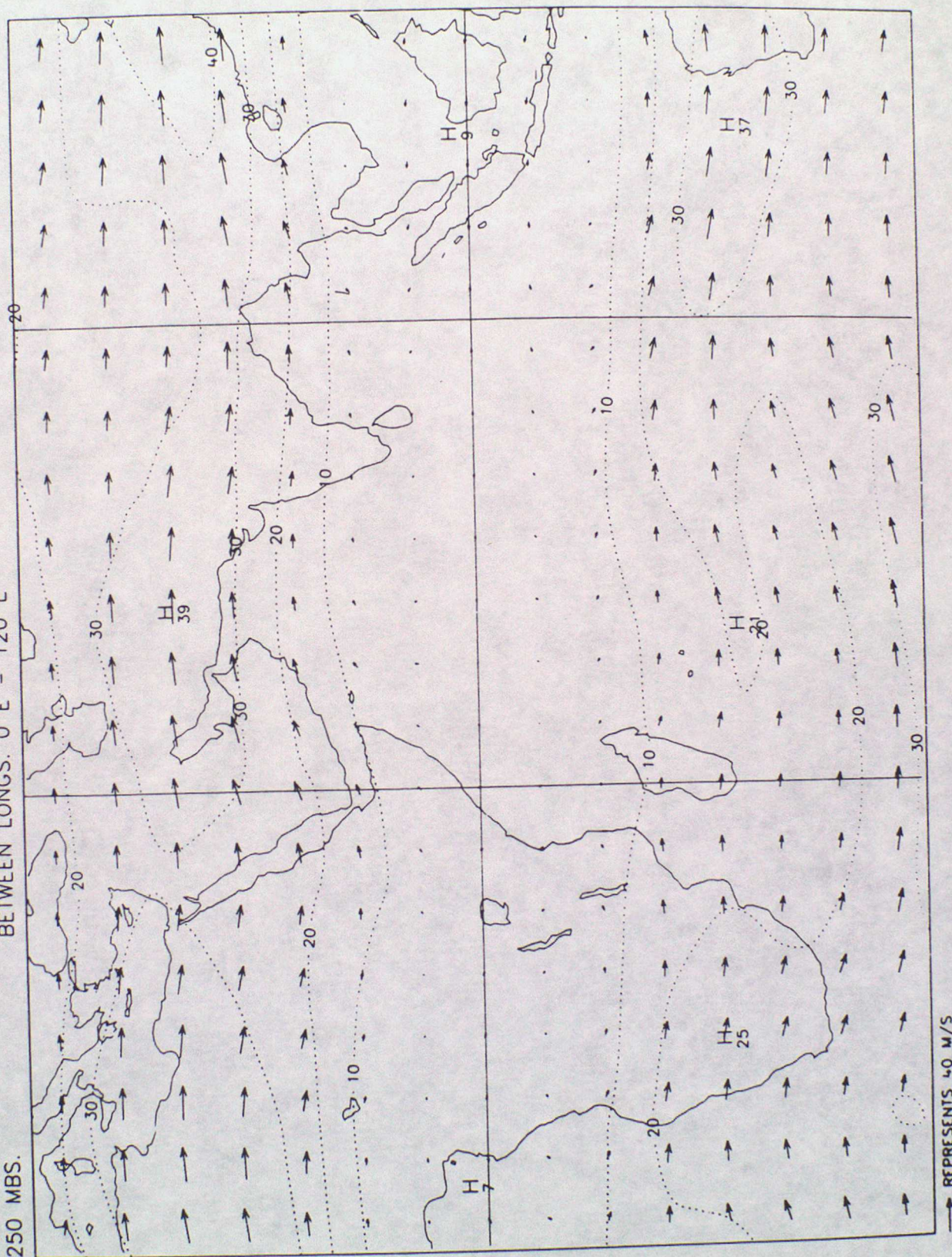


OPERATIONAL ARCHIVE MEANS. APRIL 1990
 WIND ARROWS AND ISOTACHS BETWEEN LATS. 45 N - 45 S.
 AVERAGE FROM 0Z ON 1/4/1990 DAY 91 TO 12Z ON 30/4/1990 DAY 120
 BETWEEN LONGS. 120 E - 120 W
 850 MBS.



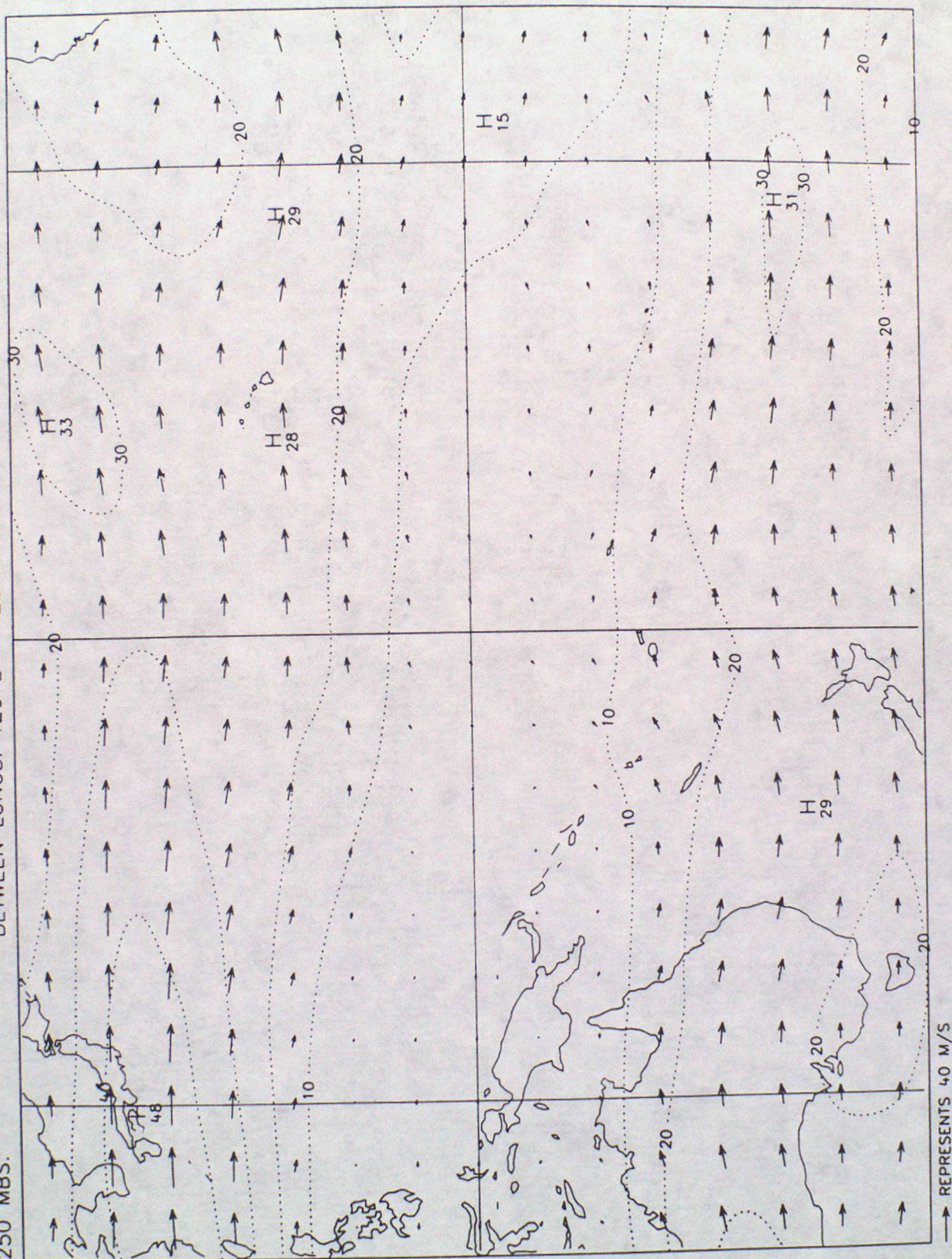
→ REPRESENTS 10 M/S

OPERATIONAL ARCHIVE MEANS. APRIL 1990
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 AVERAGE FROM 0Z ON 1/4/1990 DAY 91 TO 12Z ON 30/4/1990 DAY 120
 BETWEEN LONGS. 0 E - 120 E
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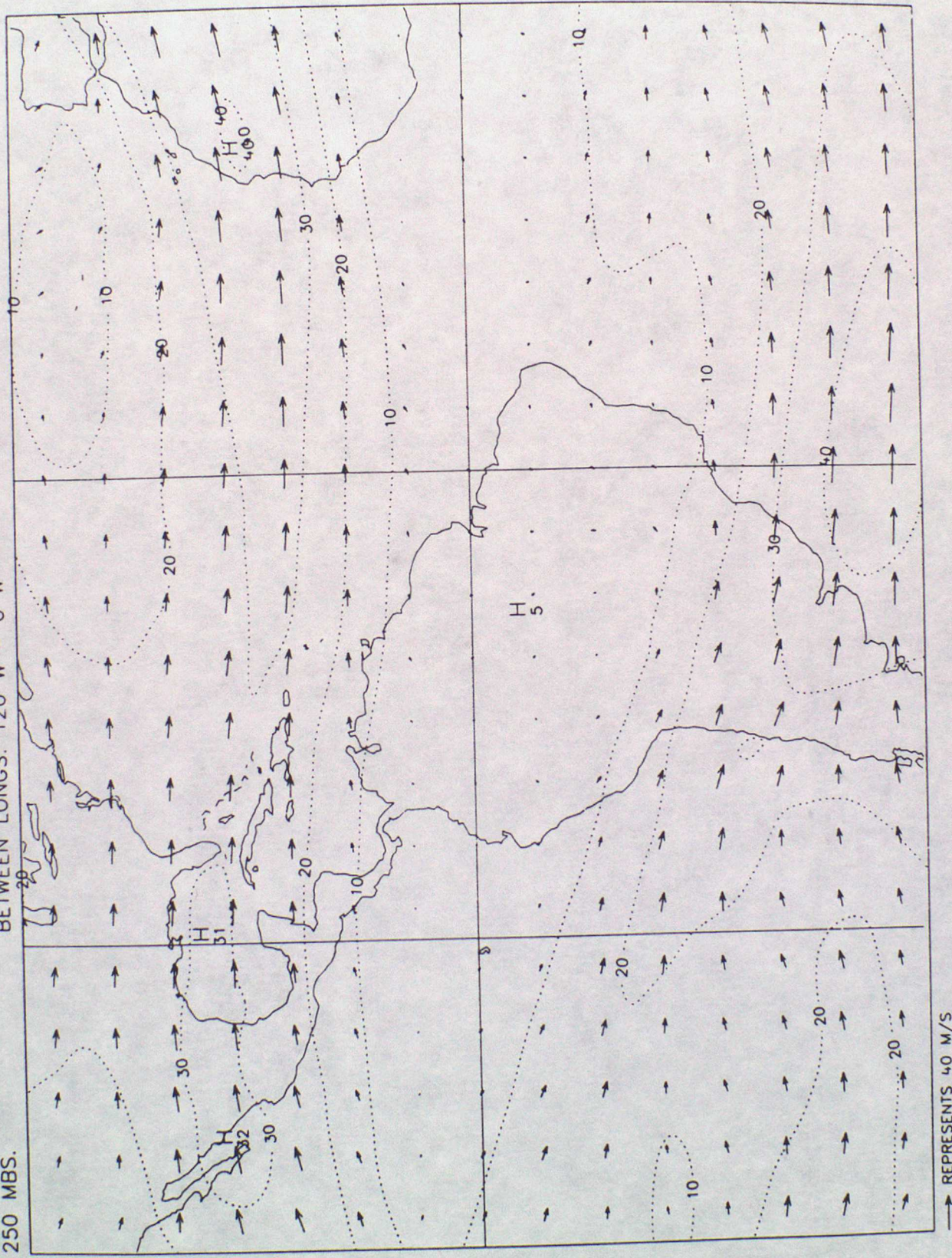
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OPERATIONAL ARCHIVE MEANS. APRIL 1990
 WIND ARROWS AND ISOTACHS BETWEEN LATS. 45 N - 45 S.
 AVERAGE FROM 0Z ON 1/4/1990 DAY 91 TO 12Z ON 30/4/1990 DAY 120
 BETWEEN LONGS. 120 E - 120 W
 250 MBS.



→ REPRESENTS 40 M/S

OPERATIONAL ARCHIVE MEANS. APRIL 1990
 WIND ARROWS AND ISOTACHS BETWEEN LATS. 45 N - 45 S.
 AVERAGE FROM 0Z ON 1/4/1990 DAY 91 TO 12Z ON 30/4/1990 DAY 120
 BETWEEN LONGS. 120 W - 0 W
 250 MBS.

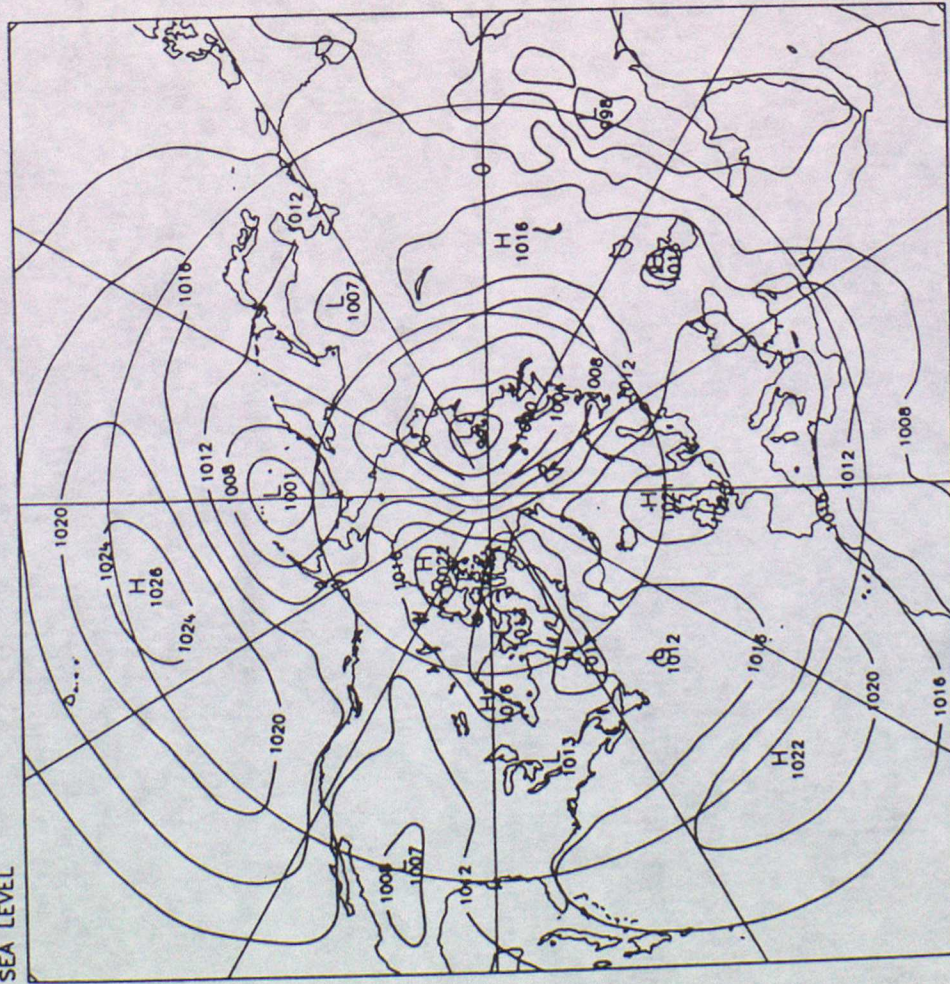


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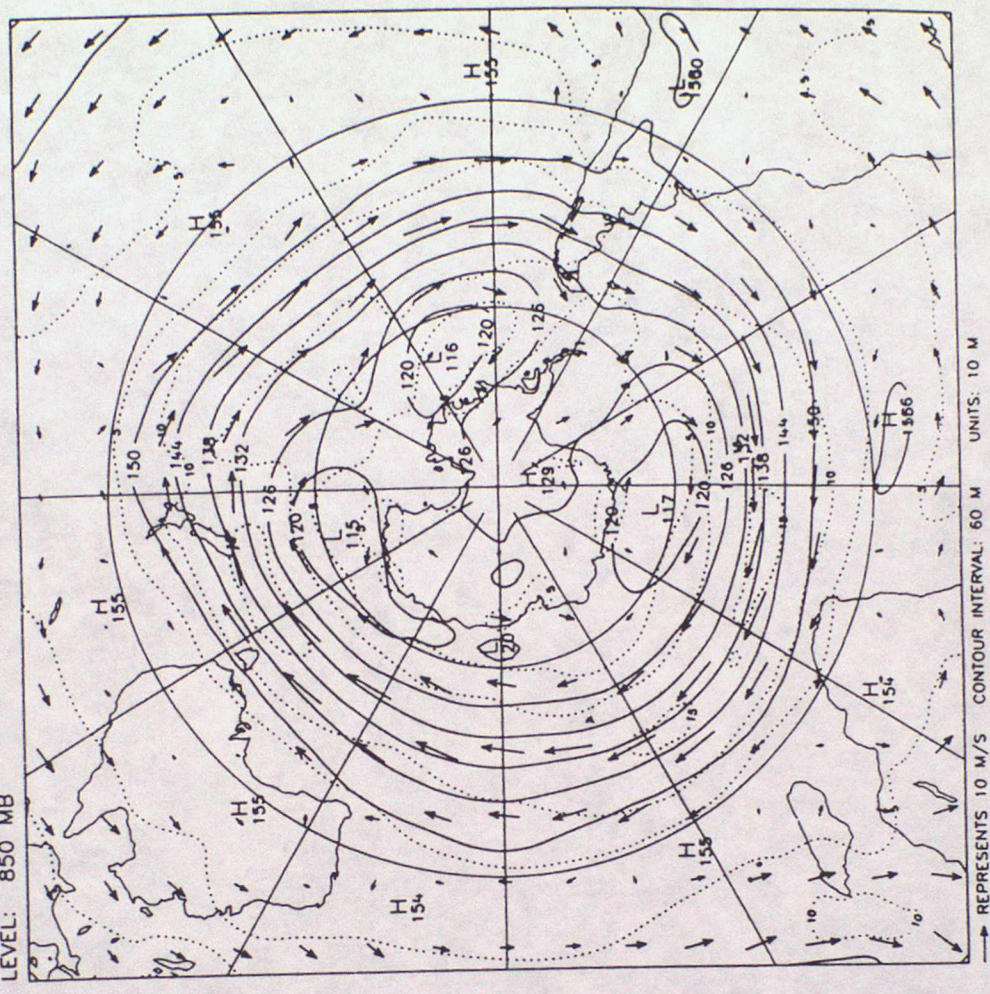
MAY
1990

OPERATIONAL ARCHIVE MEANS. MAY 1990

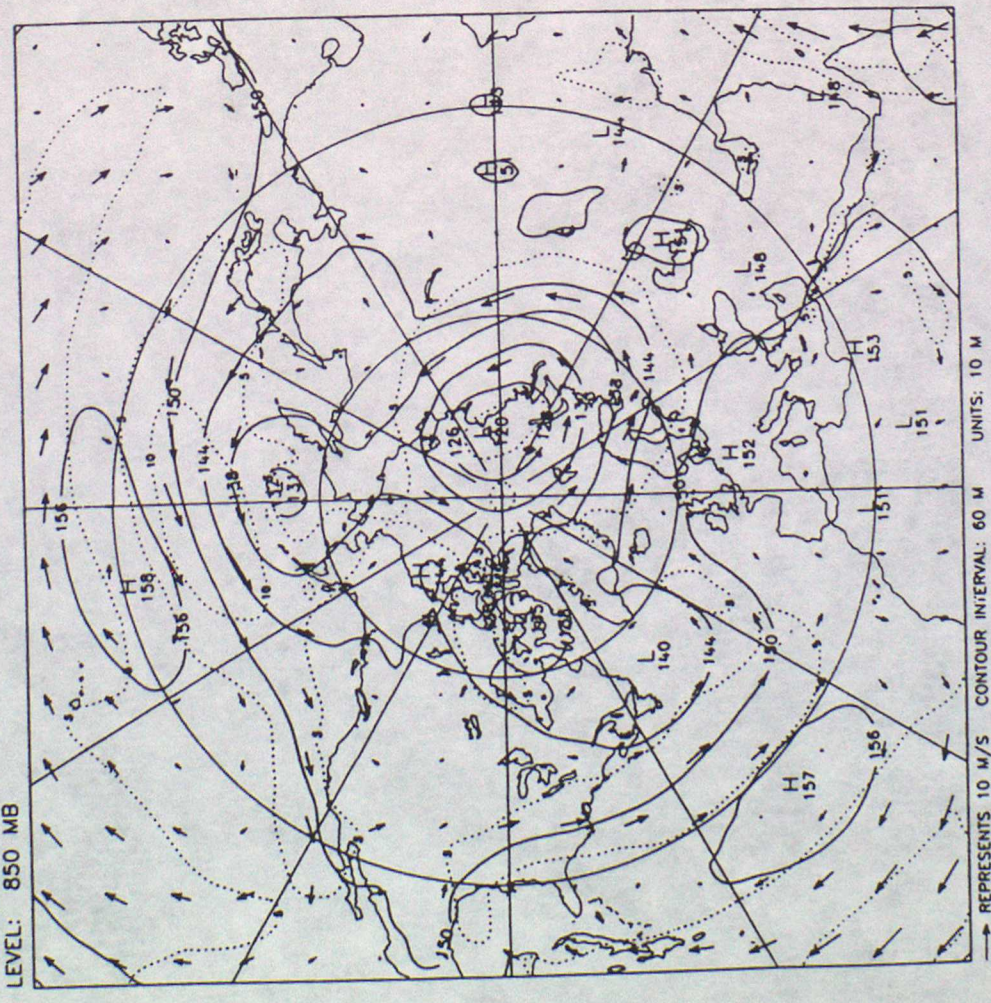
PMSL
AVERAGE FROM 0Z ON 1/5/1990 DAY 121 TO 12Z ON 31/5/1990 DAY 151
SEA LEVEL



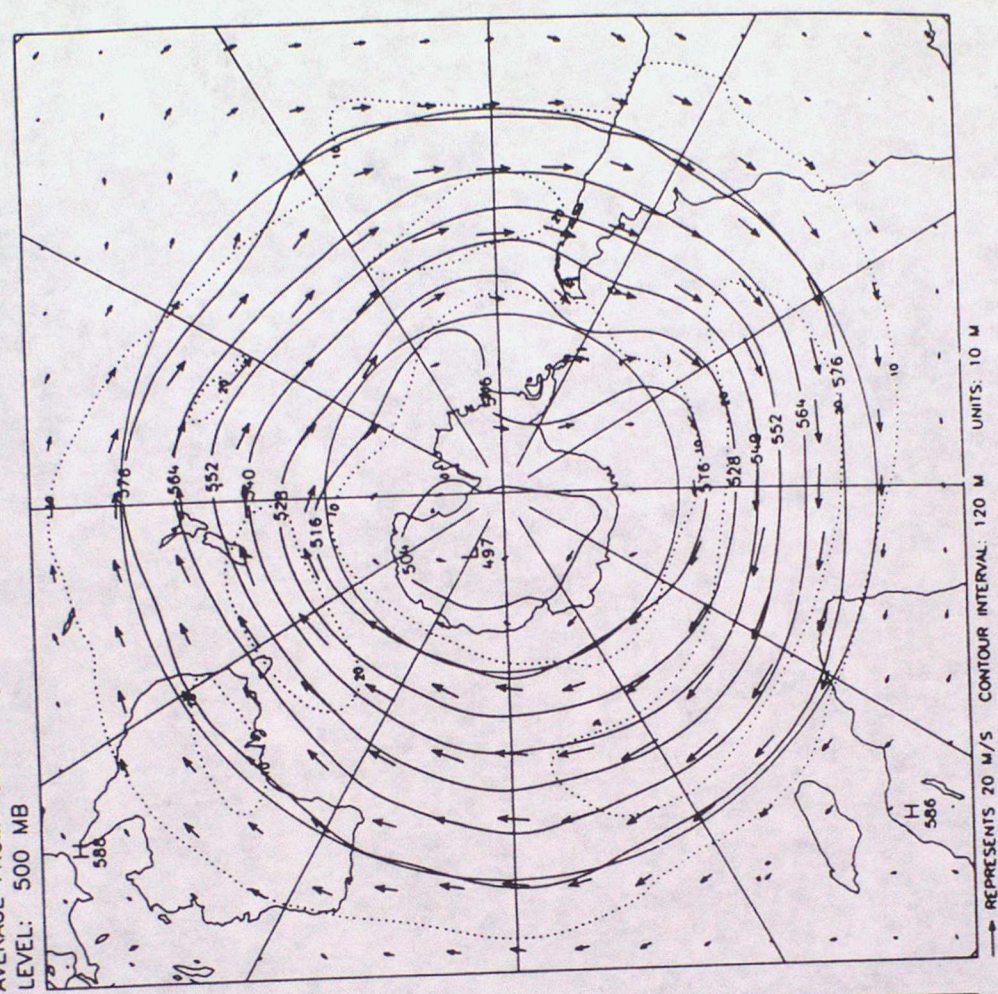
OPERATIONAL ARCHIVE MEANS. MAY 1990
 HEIGHTS, WIND ARROWS AND ISOTACHS.
 AVERAGE FROM 0Z ON 1/5/1990 DAY 121 TO 12Z ON 31/5/1990 DAY 151
 LEVEL: 850 MB



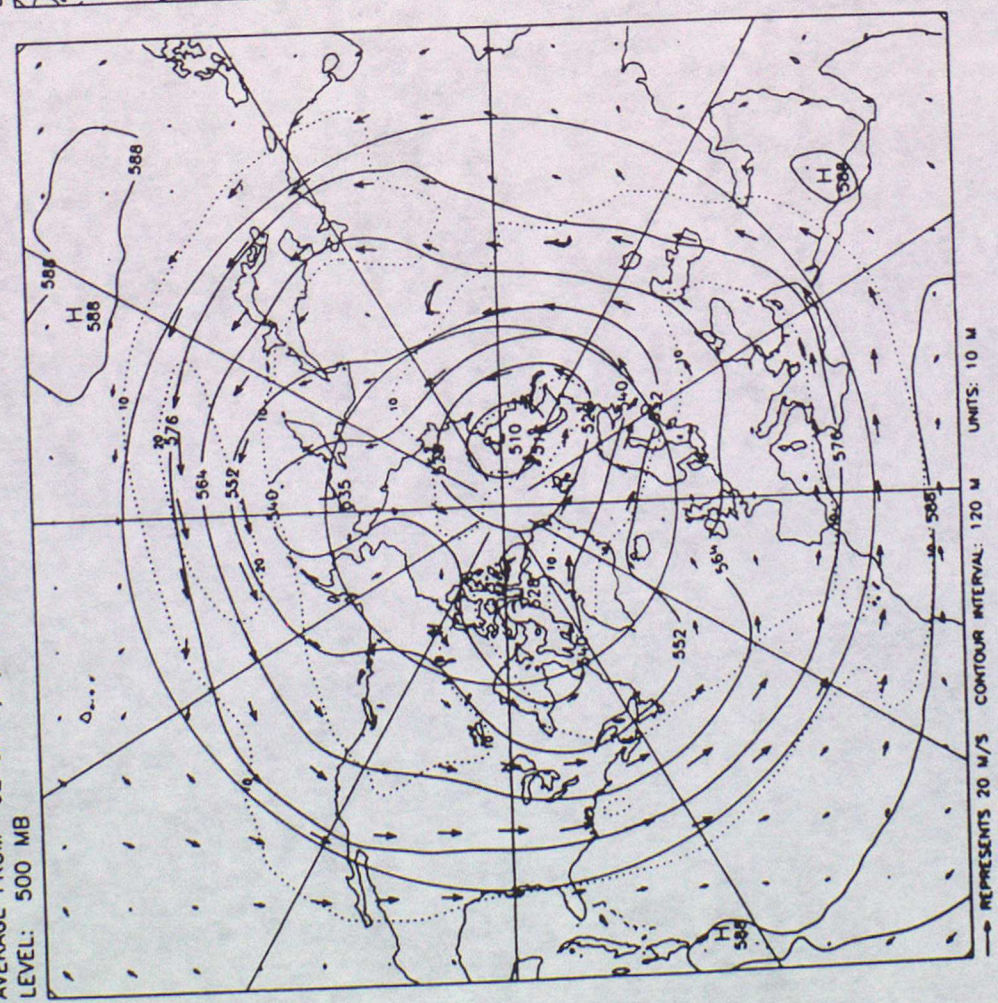
OPERATIONAL ARCHIVE MEANS. MAY 1990
 HEIGHTS, WIND ARROWS AND ISOTACHS.
 AVERAGE FROM 0Z ON 1/5/1990 DAY 121 TO 12Z ON 31/5/1990 DAY 151
 LEVEL: 850 MB



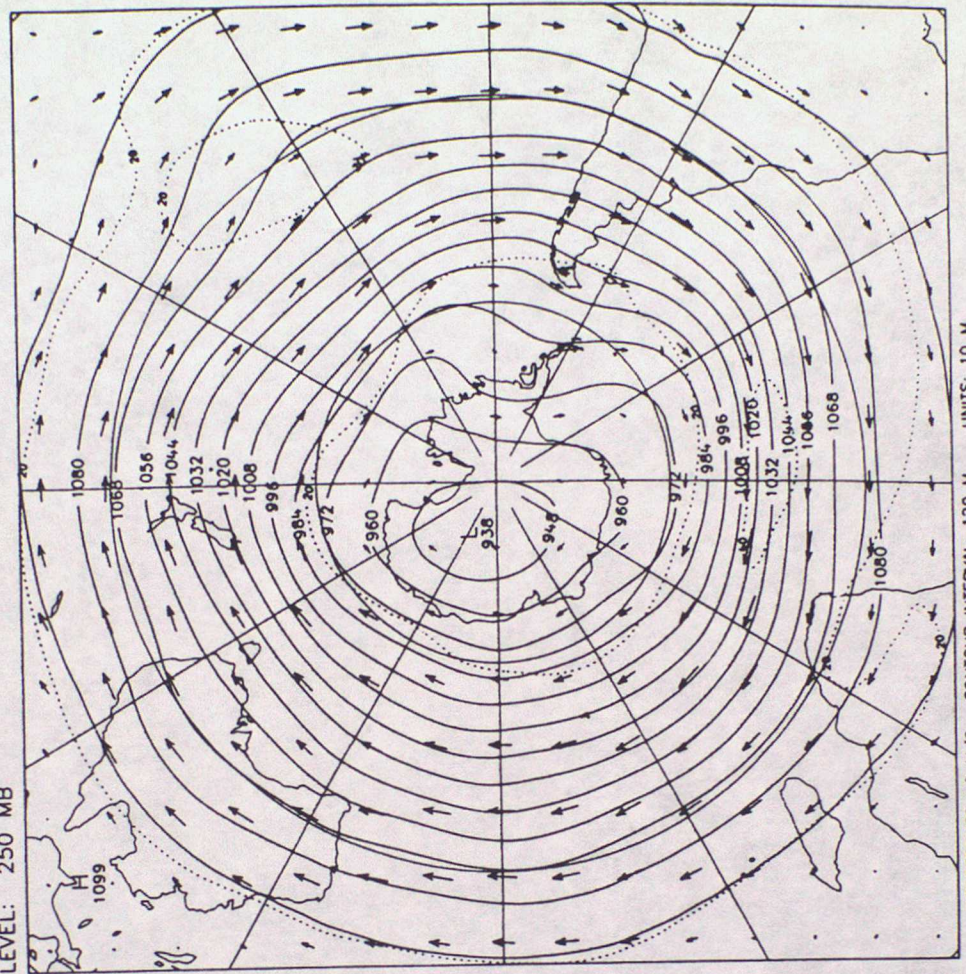
OPERATIONAL ARCHIVE MEANS. MAY 1990
 HEIGHTS, WIND ARROWS AND ISOTACHS.
 AVERAGE FROM 0Z ON 1/5/1990 DAY 121 TO 12Z ON 31/5/1990 DAY 151
 LEVEL: 500 MB



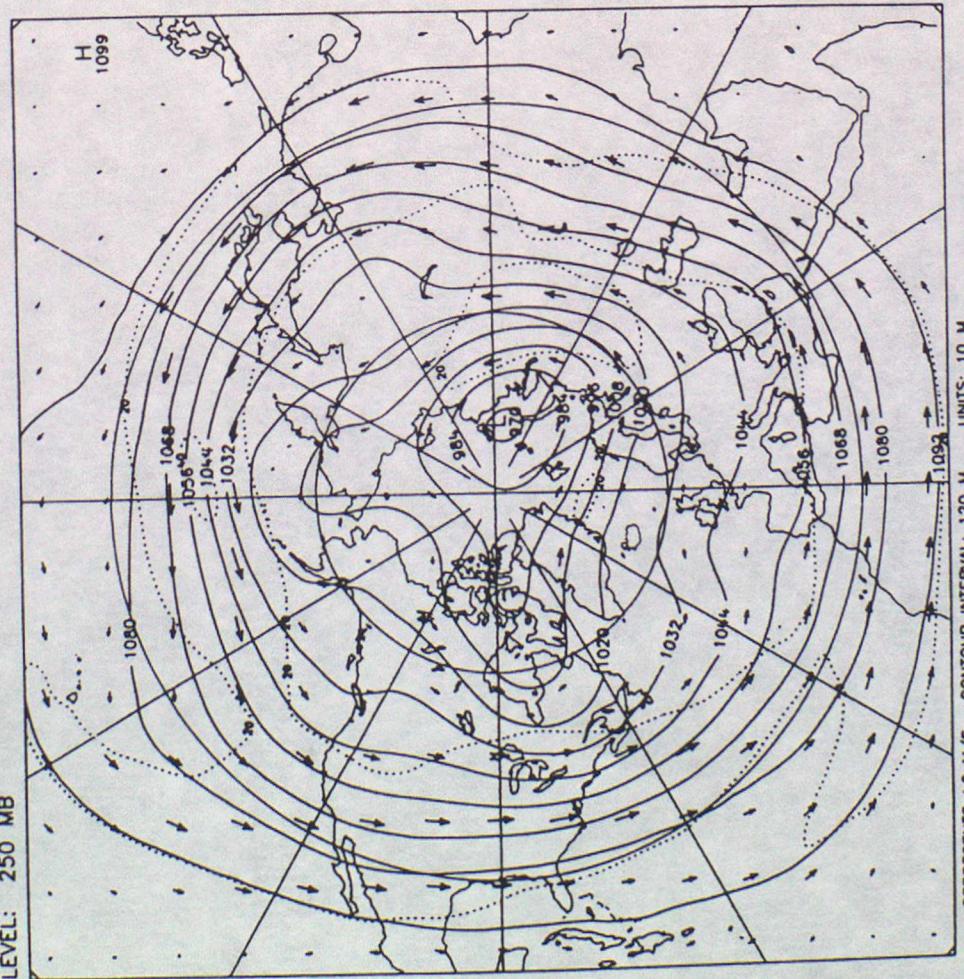
OPERATIONAL ARCHIVE MEANS. MAY 1990
 HEIGHTS, WIND ARROWS AND ISOTACHS.
 AVERAGE FROM 0Z ON 1/5/1990 DAY 121 TO 12Z ON 31/5/1990 DAY 151
 LEVEL: 500 MB



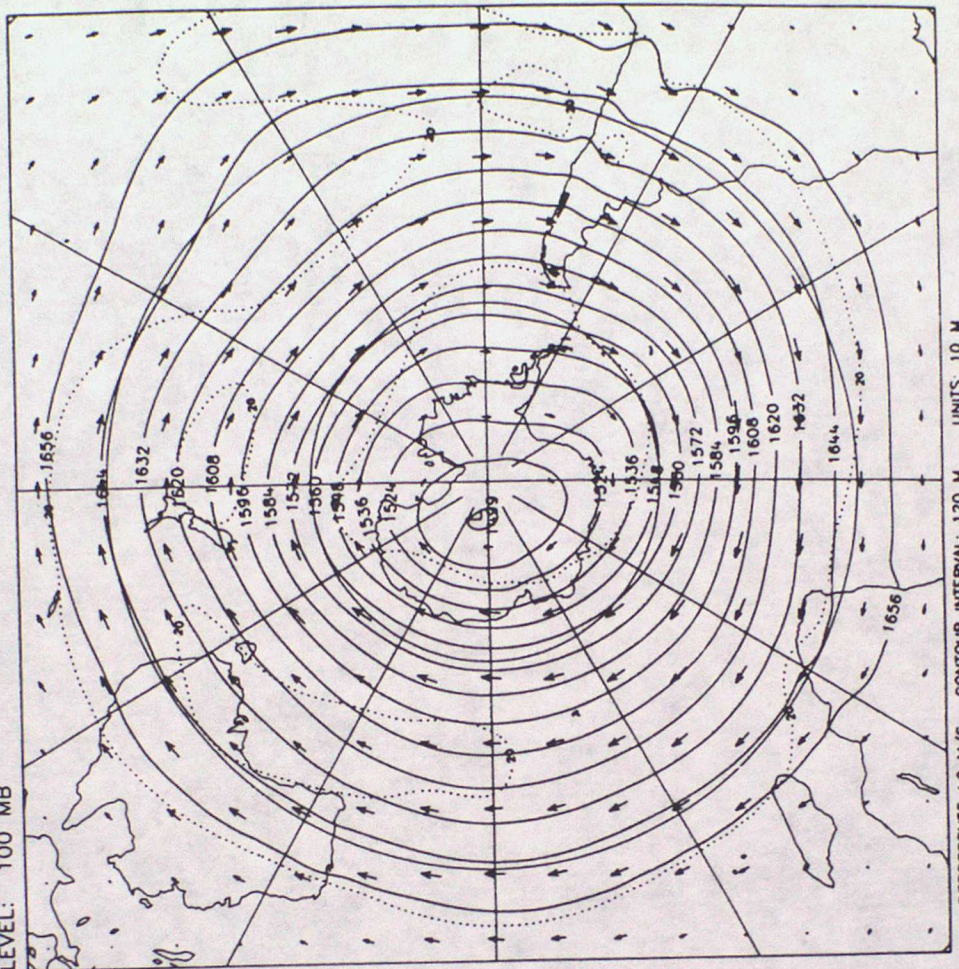
OPERATIONAL ARCHIVE MEANS. MAY 1990
 HEIGHTS, WIND ARROWS AND ISOTACHS.
 AVERAGE FROM 0Z ON 1/5/1990 DAY 121 TO 12Z ON 31/5/1990 DAY 151
 LEVEL: 250 MB



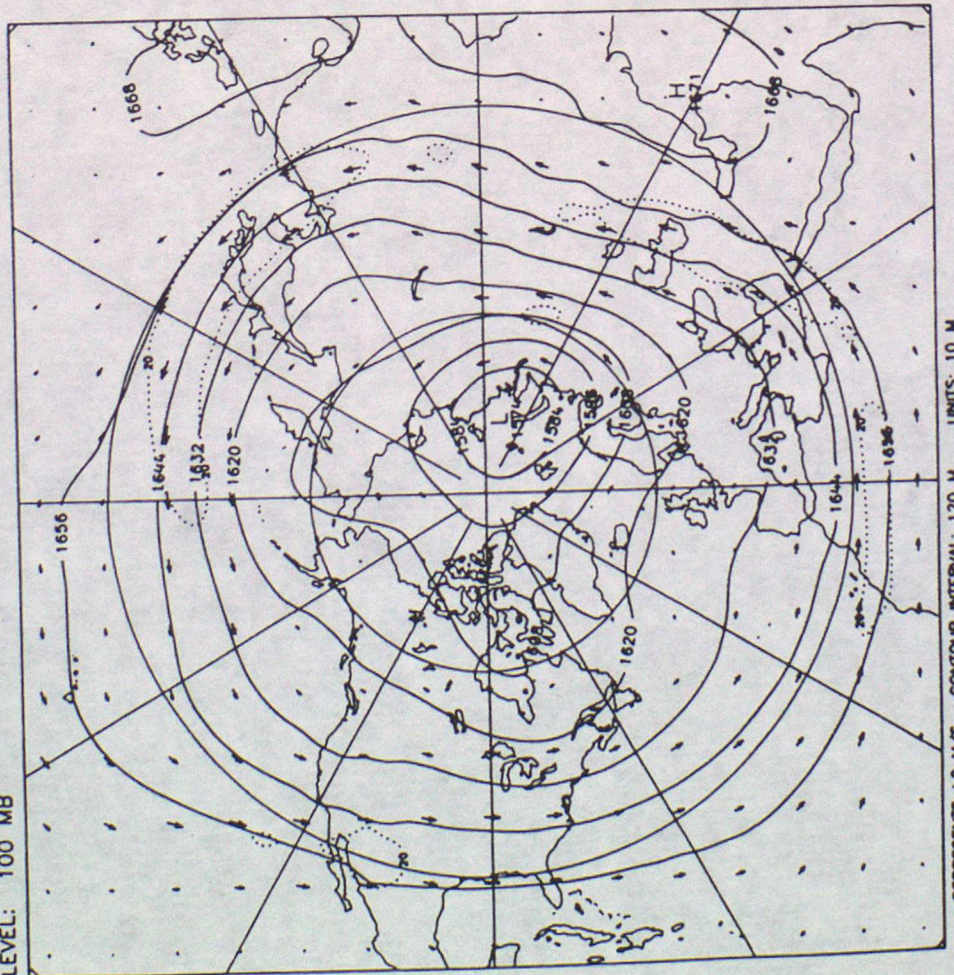
OPERATIONAL ARCHIVE MEANS. MAY 1990
 HEIGHTS, WIND ARROWS AND ISOTACHS.
 AVERAGE FROM 0Z ON 1/5/1990 DAY 121 TO 12Z ON 31/5/1990 DAY 151
 LEVEL: 250 MB



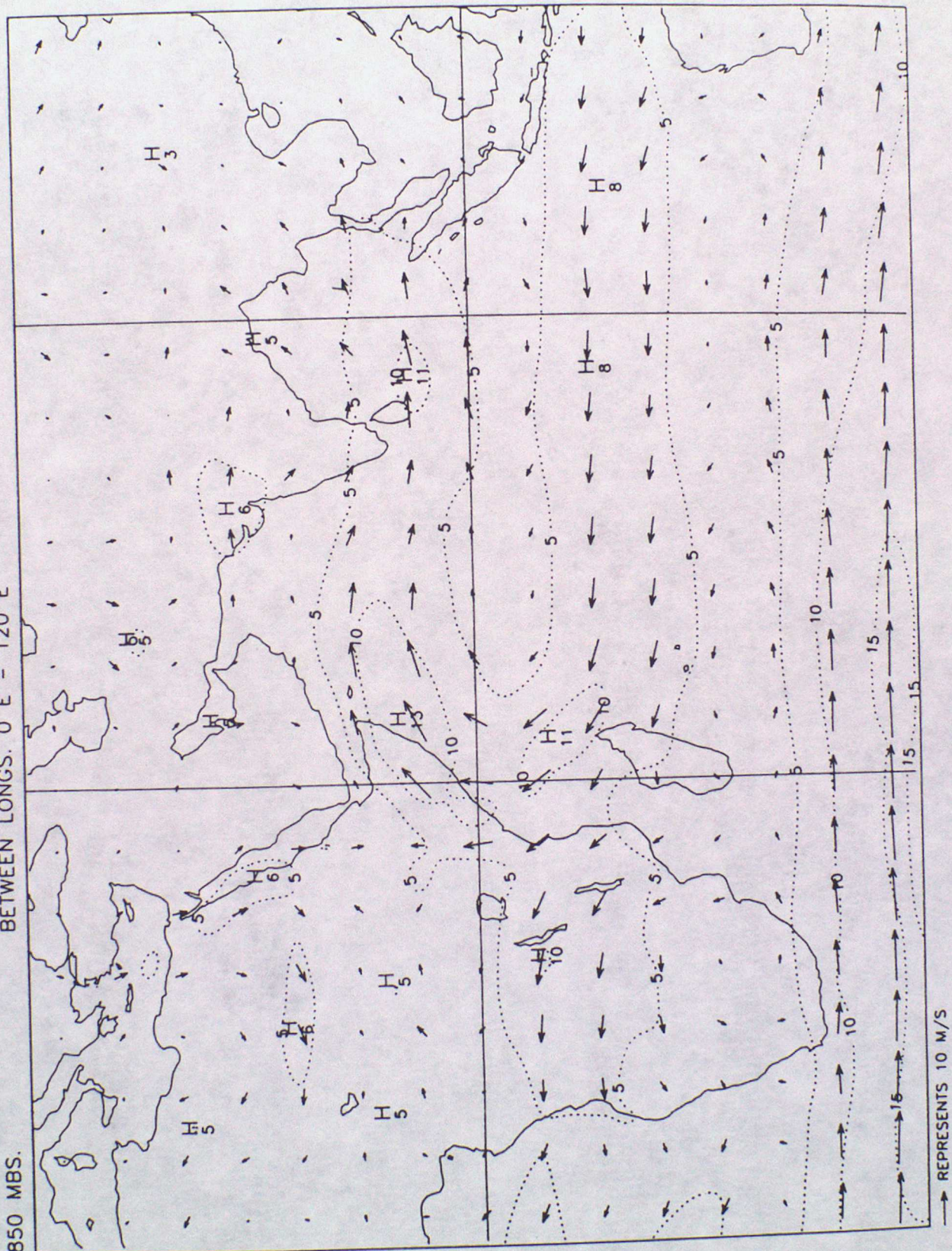
OPERATIONAL ARCHIVE MEANS. MAY 1990
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 AVERAGE FROM 0Z ON 1/5/1990 DAY 121 TO 12Z ON 31/5/1990 DAY 151
 LEVEL: 100 MB



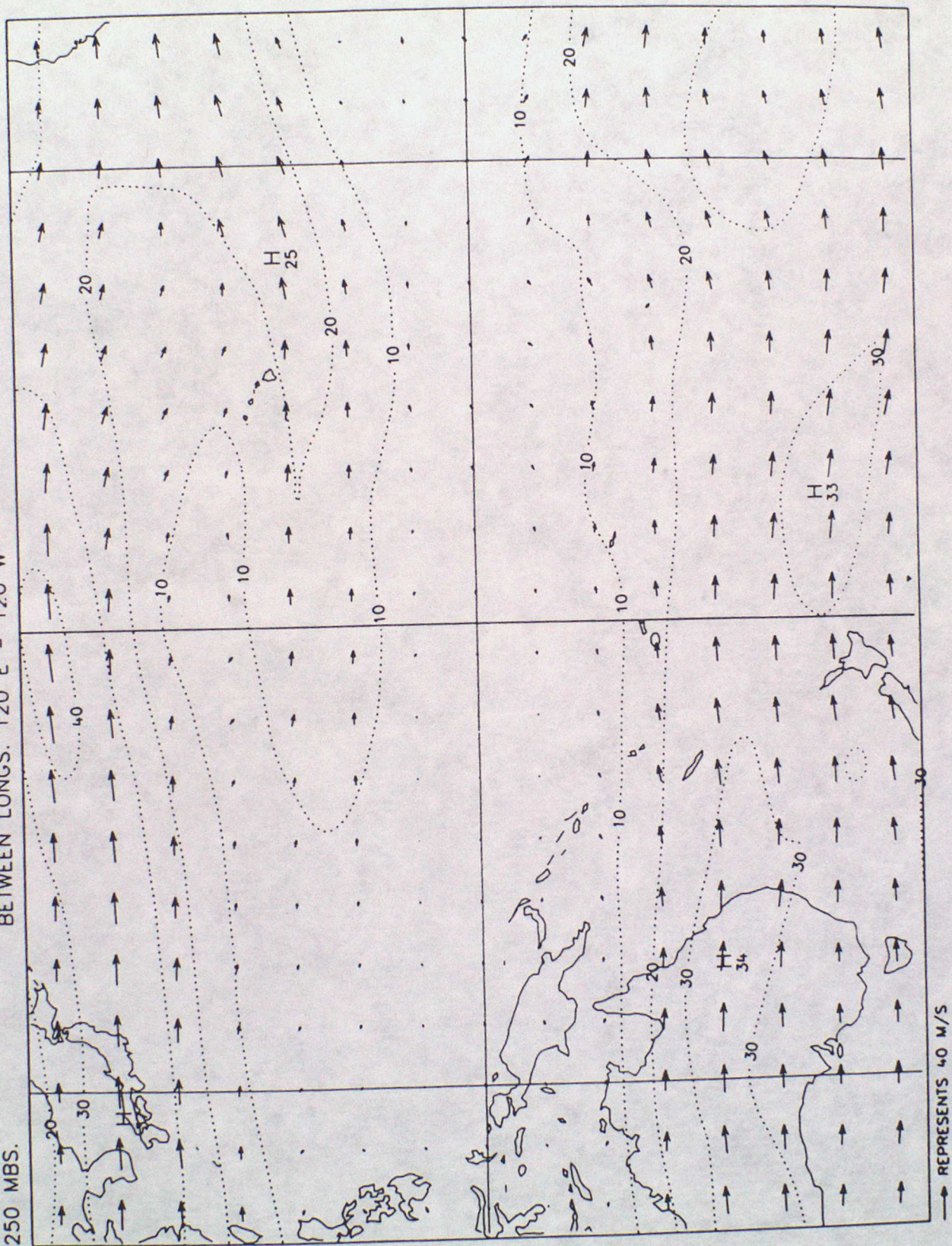
OPERATIONAL ARCHIVE MEANS. MAY 1990
 HEIGHTS, WIND ARROWS AND ISOTACHS.
 AVERAGE FROM 0Z ON 1/5/1990 DAY 121 TO 12Z ON 31/5/1990 DAY 151
 LEVEL: 100 MB



OPERATIONAL ARCHIVE MEANS. MAY 1990
WIND ARROWS AND ISOTACHS BETWEEN LATS. 45 N - 45 S.
AVERAGE FROM 0Z ON 1/5/1990 DAY 121 TO 12Z ON 31/5/1990 DAY 151
BETWEEN LONGS. 0 E - 120 E
850 MBS.

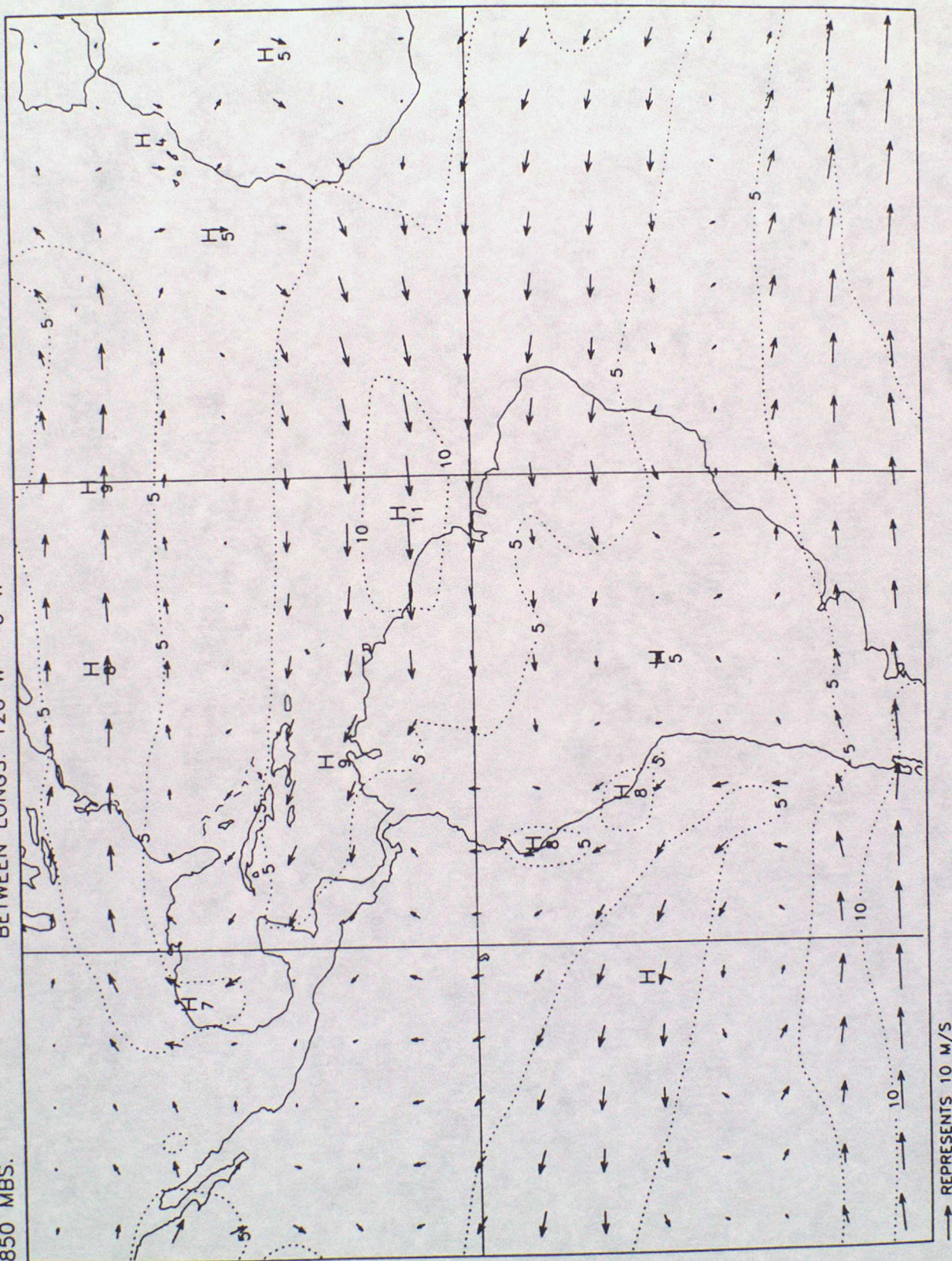


OPERATIONAL ARCHIVE MEANS. MAY 1990
 WIND ARROWS AND ISOTACHS BETWEEN LATS. 45°N - 45°S.
 AVERAGE FROM 0Z ON 1/5/1990 DAY 121 TO 12Z ON 31/5/1990 DAY 151
 BETWEEN LONGS. 120°E - 120°W
 250 MBS.



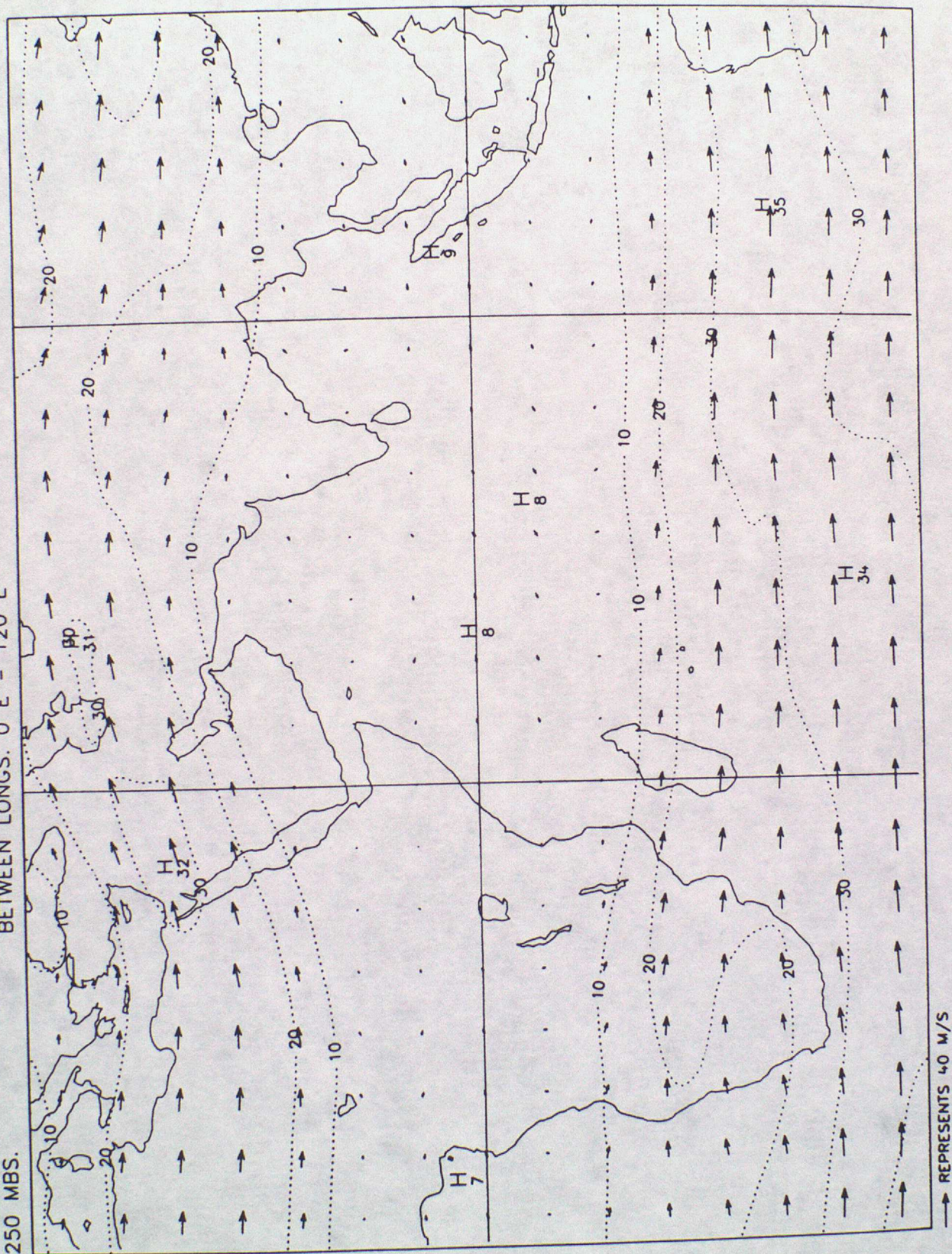
→ REPRESENTS 40 M/S

OPERATIONAL ARCHIVE MEANS. MAY 1990
 WIND ARROWS AND ISOTACHS BETWEEN LATS. 45 N - 45 S.
 AVERAGE FROM 0Z ON 1/5/1990 DAY 121 TO 12Z ON 31/5/1990 DAY 151
 BETWEEN LONGS. 120 W - 0 W
 850 MBs.

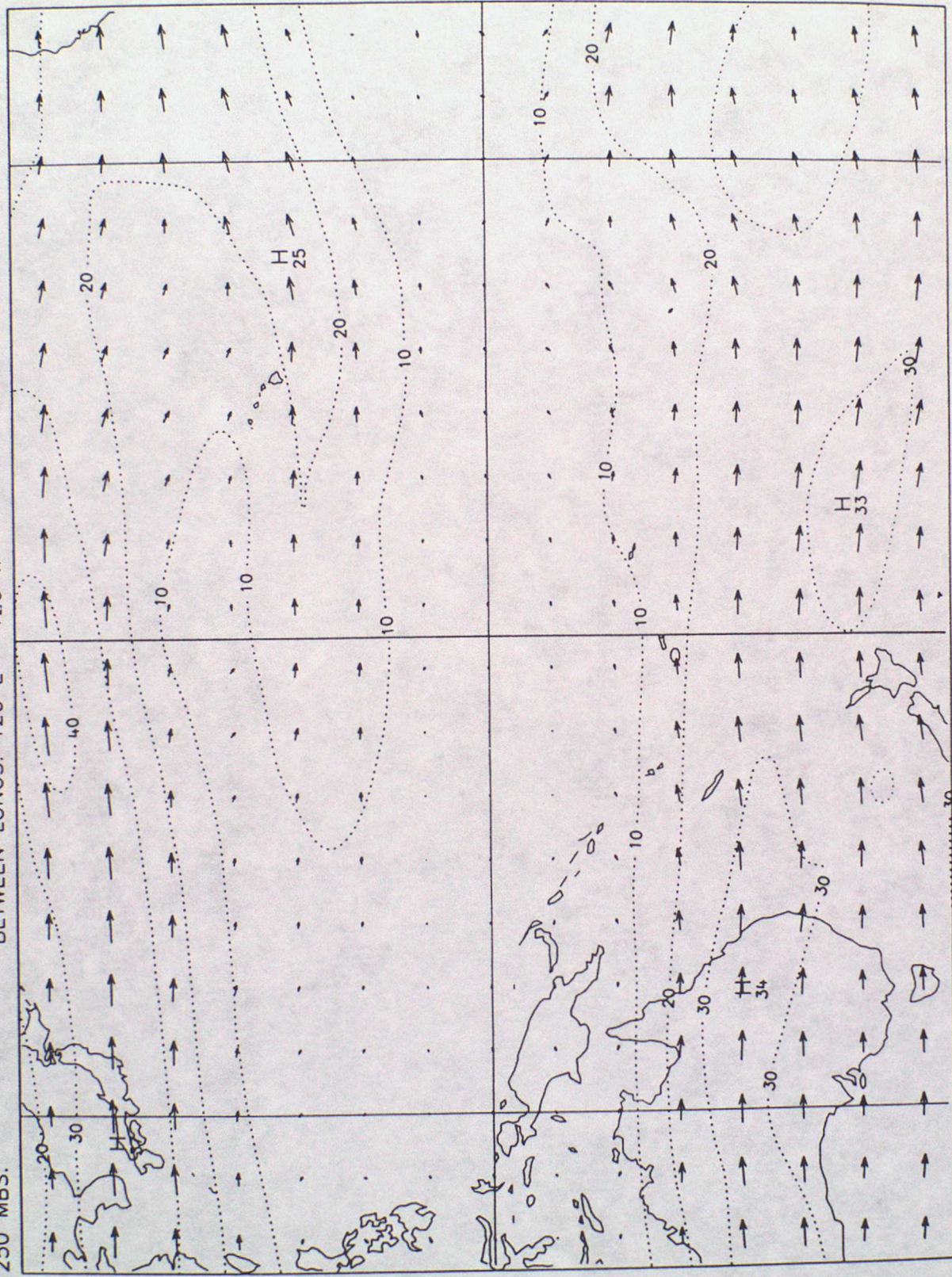


→ REPRESENTS 10 M/S

OPERATIONAL ARCHIVE MEANS. MAY 1990
 WIND ARROWS AND ISOTACHS BETWEEN LATS. 45 N - 45 S.
 AVERAGE FROM 0Z ON 1/5/1990 DAY 121 TO 12Z ON 31/5/1990 DAY 151
 BETWEEN LONGS. 0 E - 120 E
 250 MB.



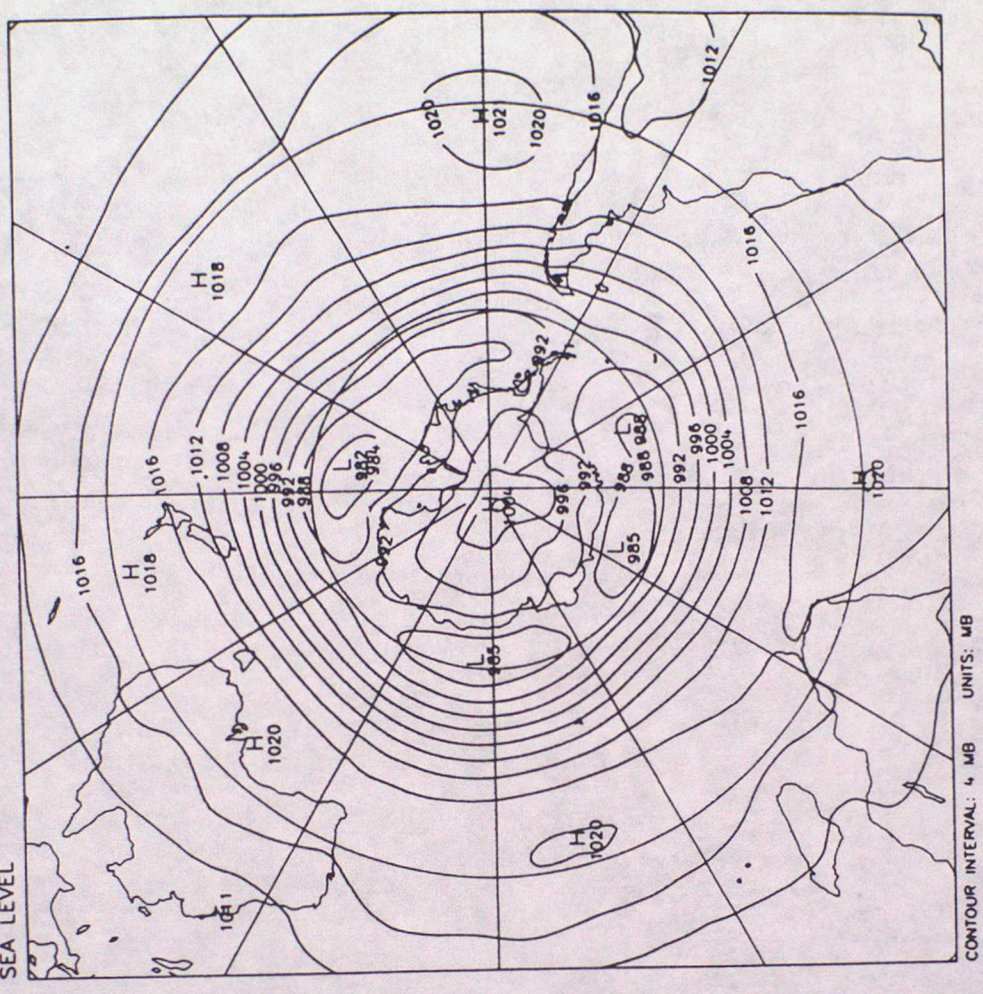
OPERATIONAL ARCHIVE MEANS. MAY 1990
 WIND ARROWS AND ISOTACHS BETWEEN LATS. 45 N - 45 S.
 AVERAGE FROM 0Z ON 1/5/1990 DAY 121 TO 12Z ON 31/5/1990 DAY 151
 BETWEEN LONGS. 120 E - 120 W
 250 MBS.



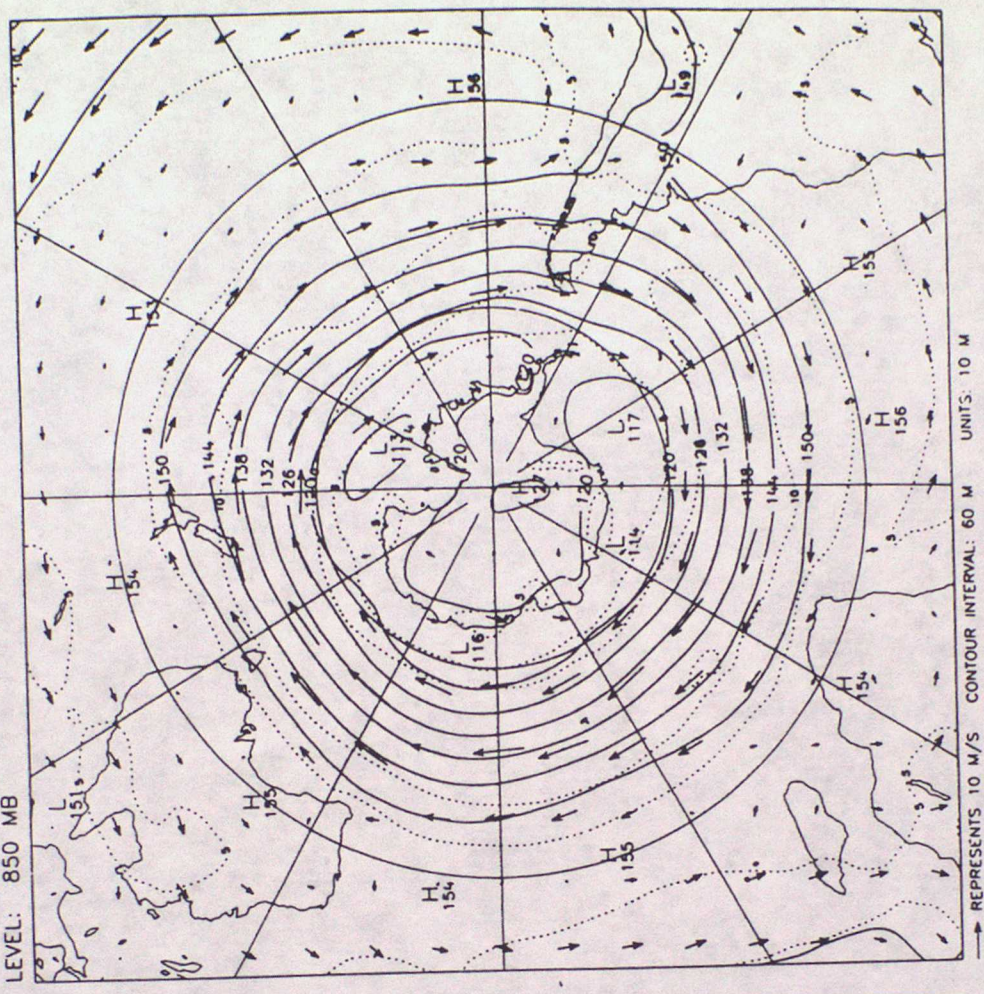
→ REPRESENTS 40 M/S

MARCH/APRIL/MAY
1990

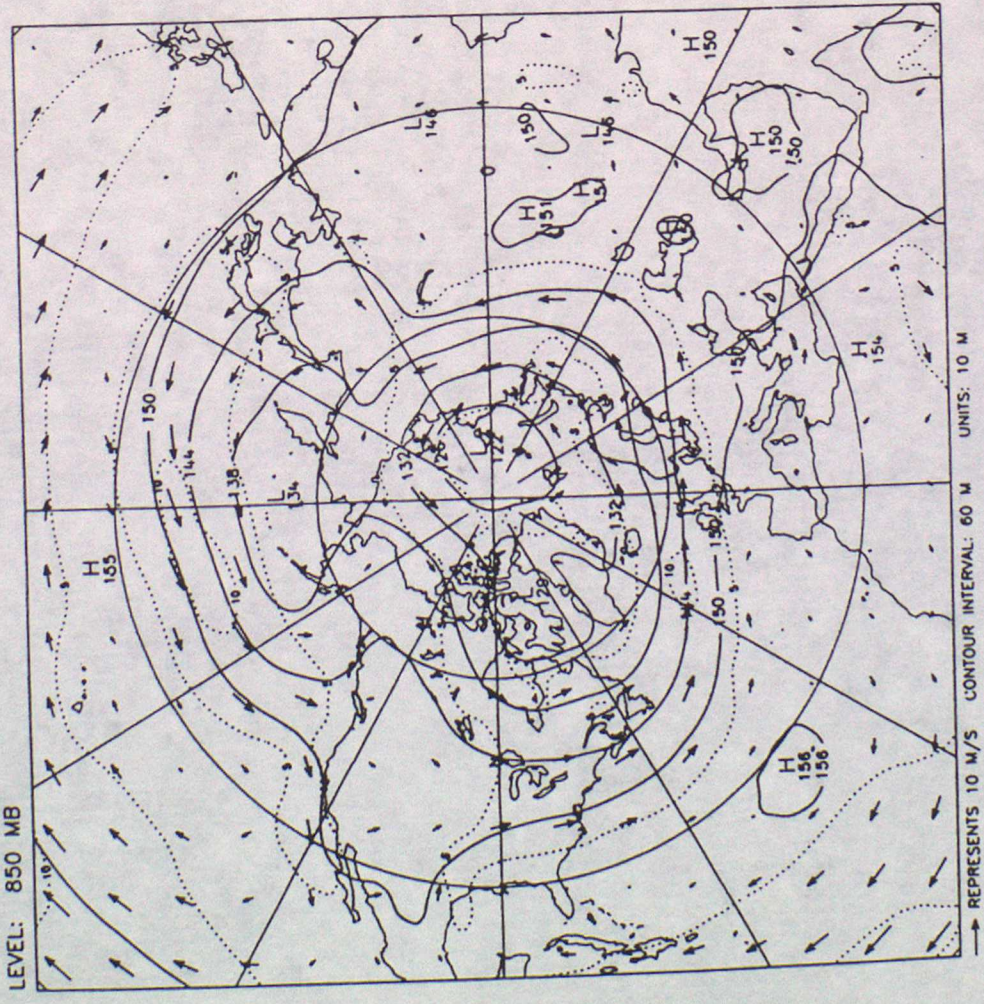
OPERATIONAL ARCHIVE MEANS. MAR/APR/MAY1990
 PMSL
 AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/5/1990 DAY 151
 SEA LEVEL



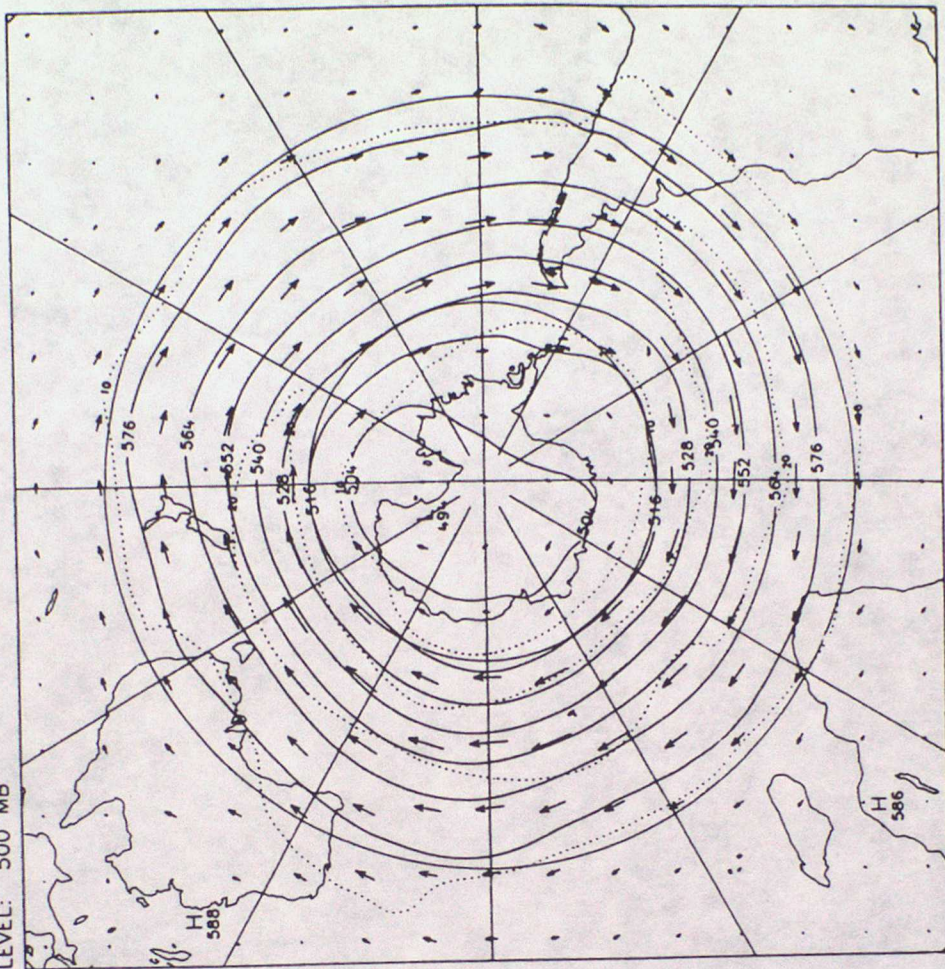
OPERATIONAL ARCHIVE MEANS. MAR/APR/MAY1990
 HEIGHTS, WIND ARROWS AND ISOTACHS.
 AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/5/1990 DAY 151
 LEVEL: 850 MB



OPERATIONAL ARCHIVE MEANS. MAR/APR/MAY1990
 HEIGHTS, WIND ARROWS AND ISOTACHS.
 AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/5/1990 DAY 151
 LEVEL: 850 MB

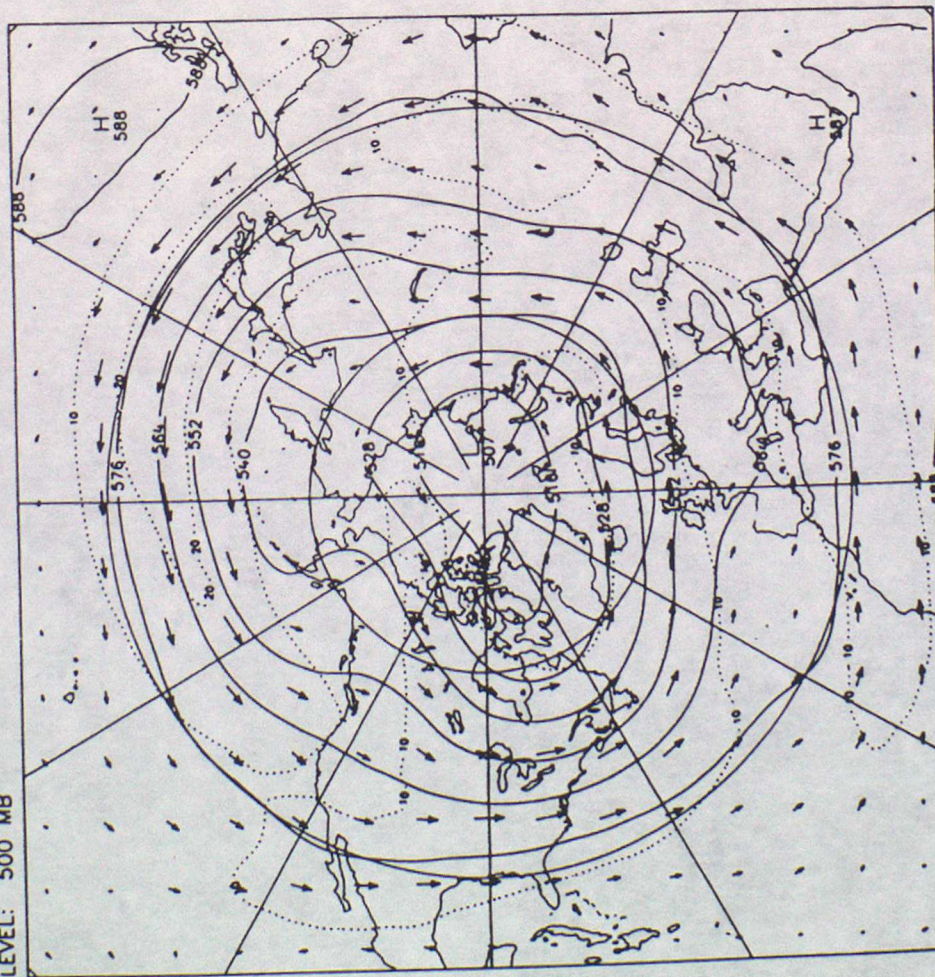


OPERATIONAL ARCHIVE MEANS. MAR/APR/MAY1990
 HEIGHTS, WIND ARROWS AND ISOTACHS.
 AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/5/1990 DAY 151
 LEVEL: 500 MB



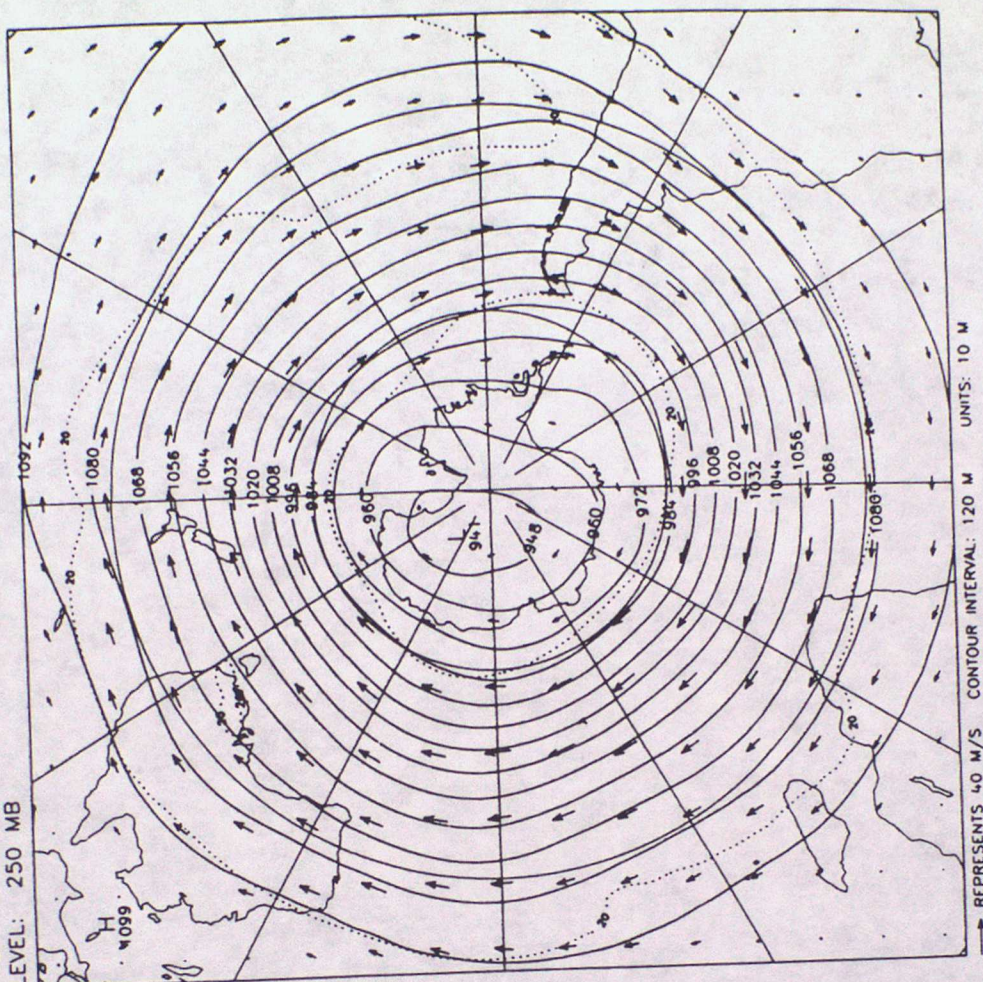
→ REPRESENTS 20 M/S CONTOUR INTERVAL: 120 M UNITS: 10 M

OPERATIONAL ARCHIVE MEANS. MAR/APR/MAY1990
 HEIGHTS, WIND ARROWS AND ISOTACHS.
 AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/5/1990 DAY 151
 LEVEL: 500 MB

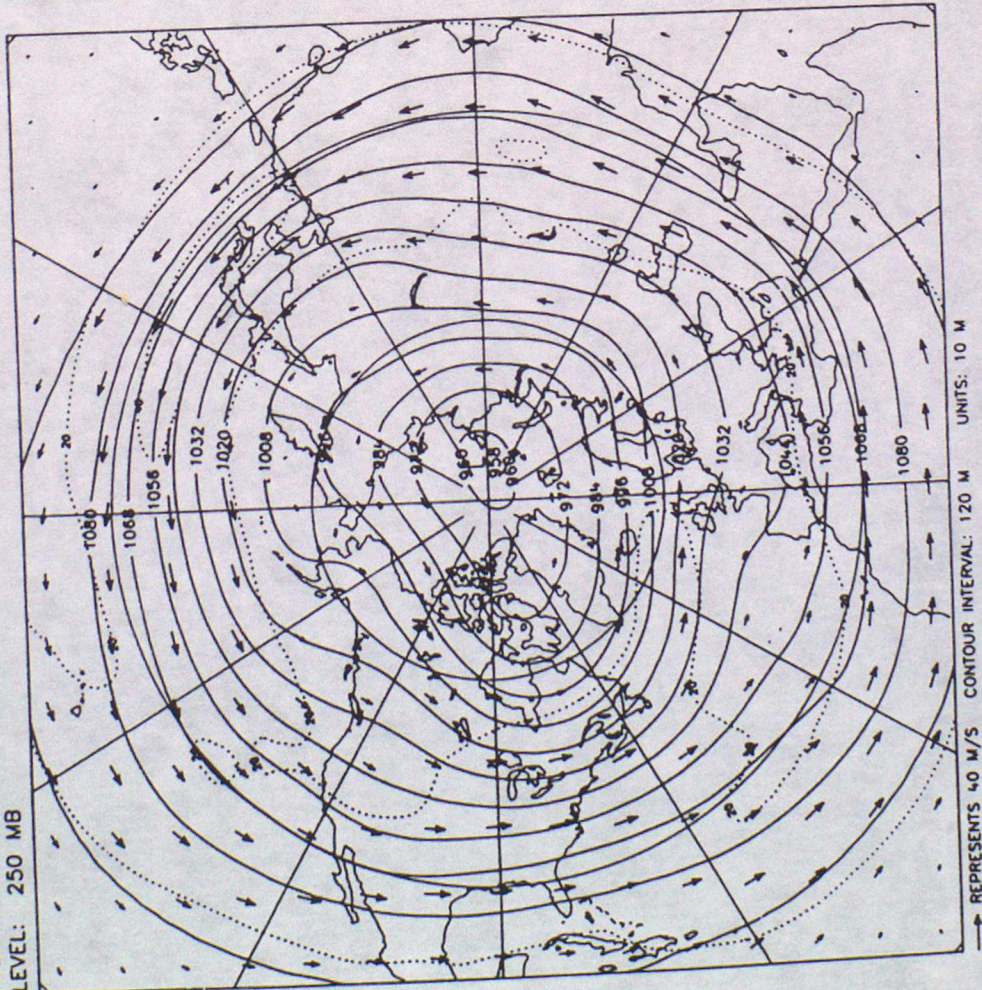


→ REPRESENTS 20 M/S CONTOUR INTERVAL: 120 M UNITS: 10 M

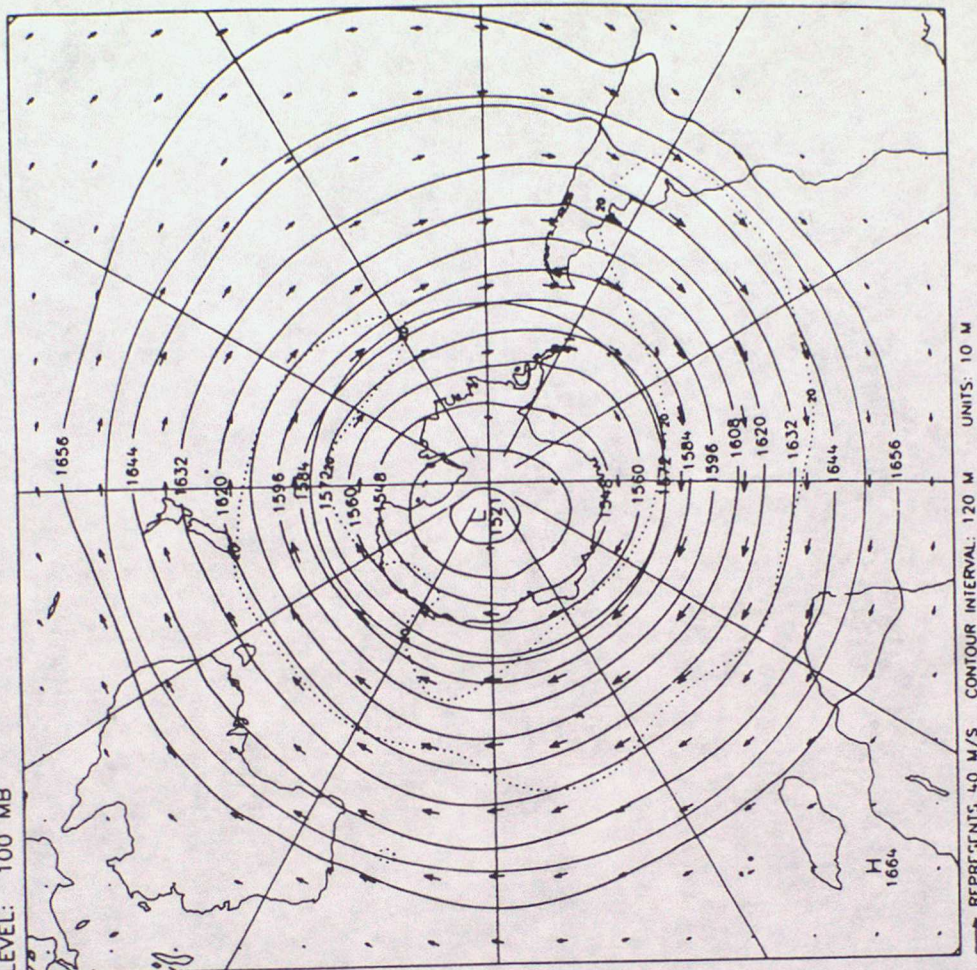
OPERATIONAL ARCHIVE MEANS. MAR/APR/MAY1990
 HEIGHTS, WIND ARROWS AND ISOTACHS.
 AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/5/1990 DAY 151
 LEVEL: 250 MB



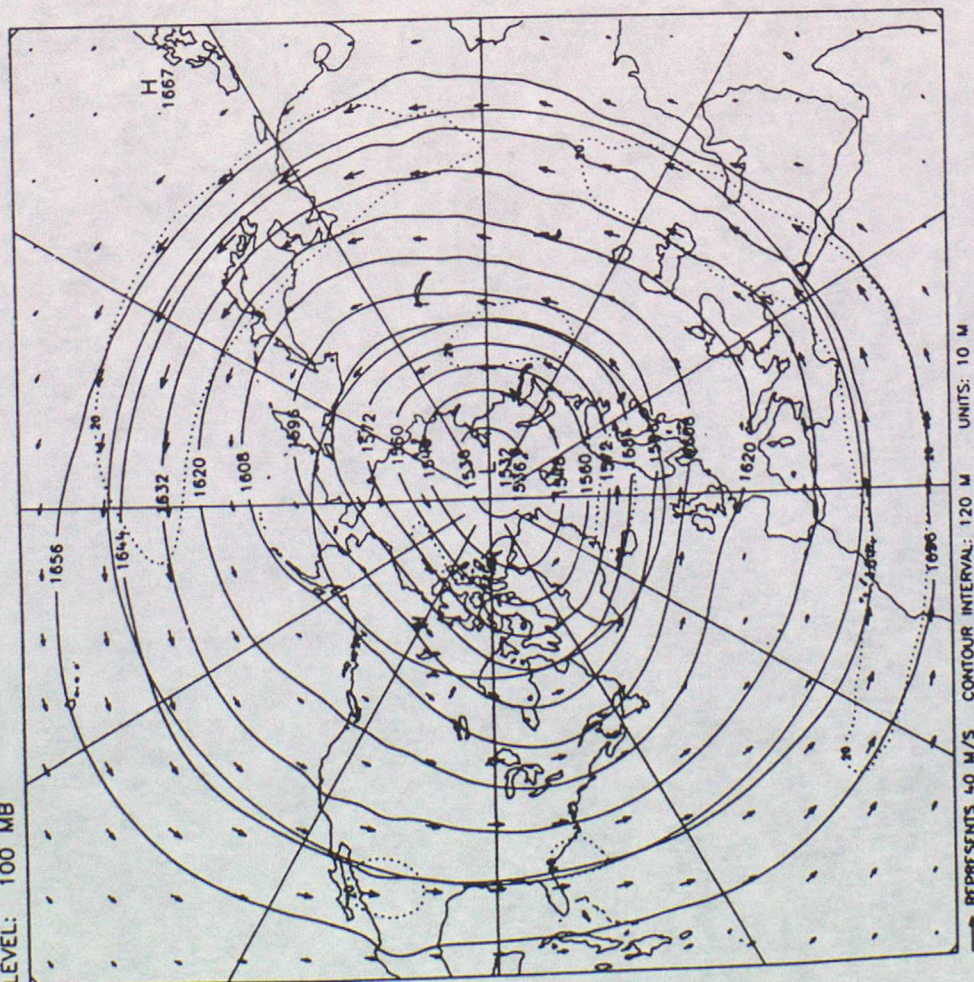
OPERATIONAL ARCHIVE MEANS. MAR/APR/MAY1990
 HEIGHTS, WIND ARROWS AND ISOTACHS.
 AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/5/1990 DAY 151
 LEVEL: 250 MB



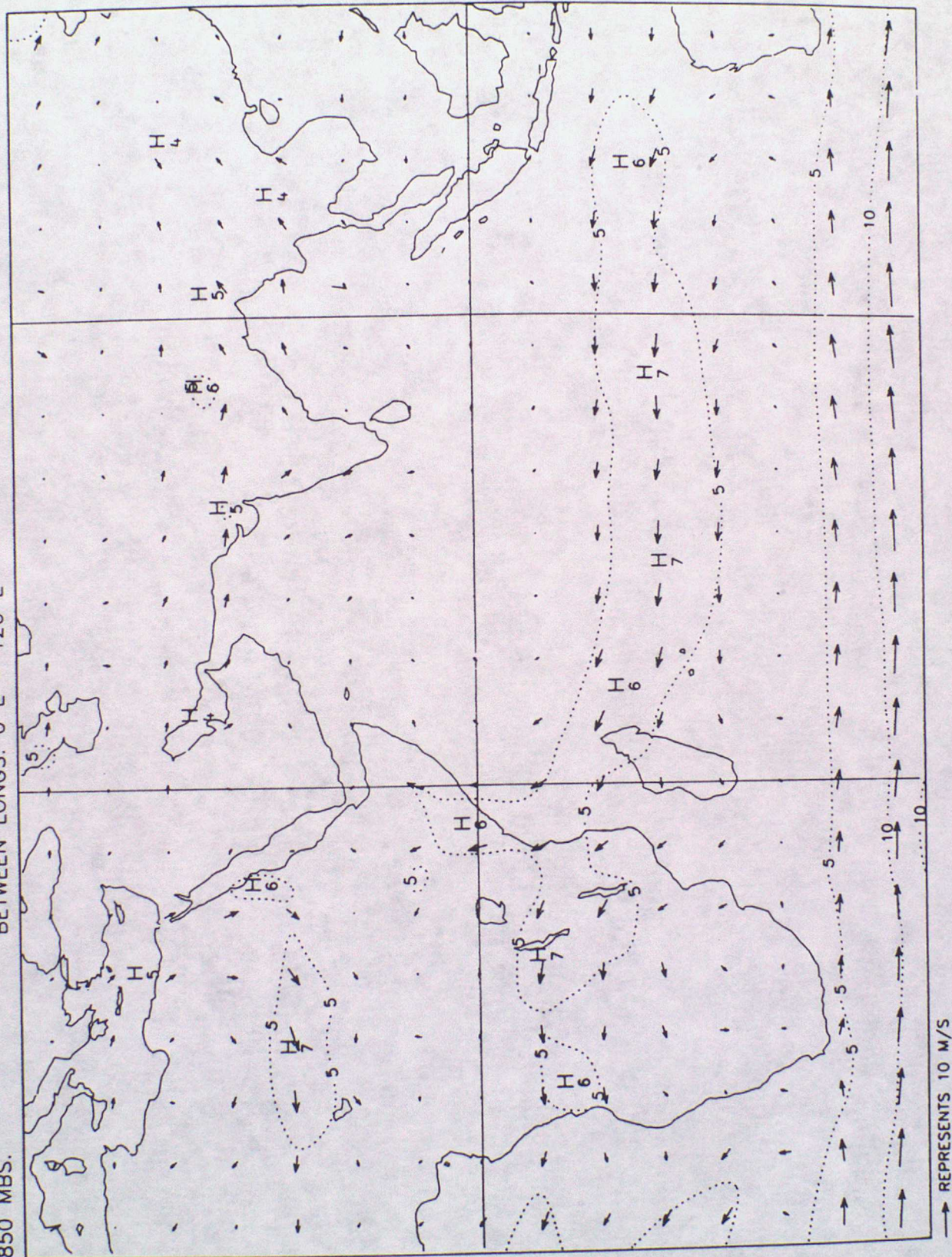
OPERATIONAL ARCHIVE MEANS. MAR/APR/MAY1990
 HEIGHTS, WIND ARROWS AND ISOTACHS.
 AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/5/1990 DAY 151
 LEVEL: 100 MB



OPERATIONAL ARCHIVE MEANS. MAR/APR/MAY1990
 HEIGHTS, WIND ARROWS AND ISOTACHS.
 AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/5/1990 DAY 151
 LEVEL: 100 MB

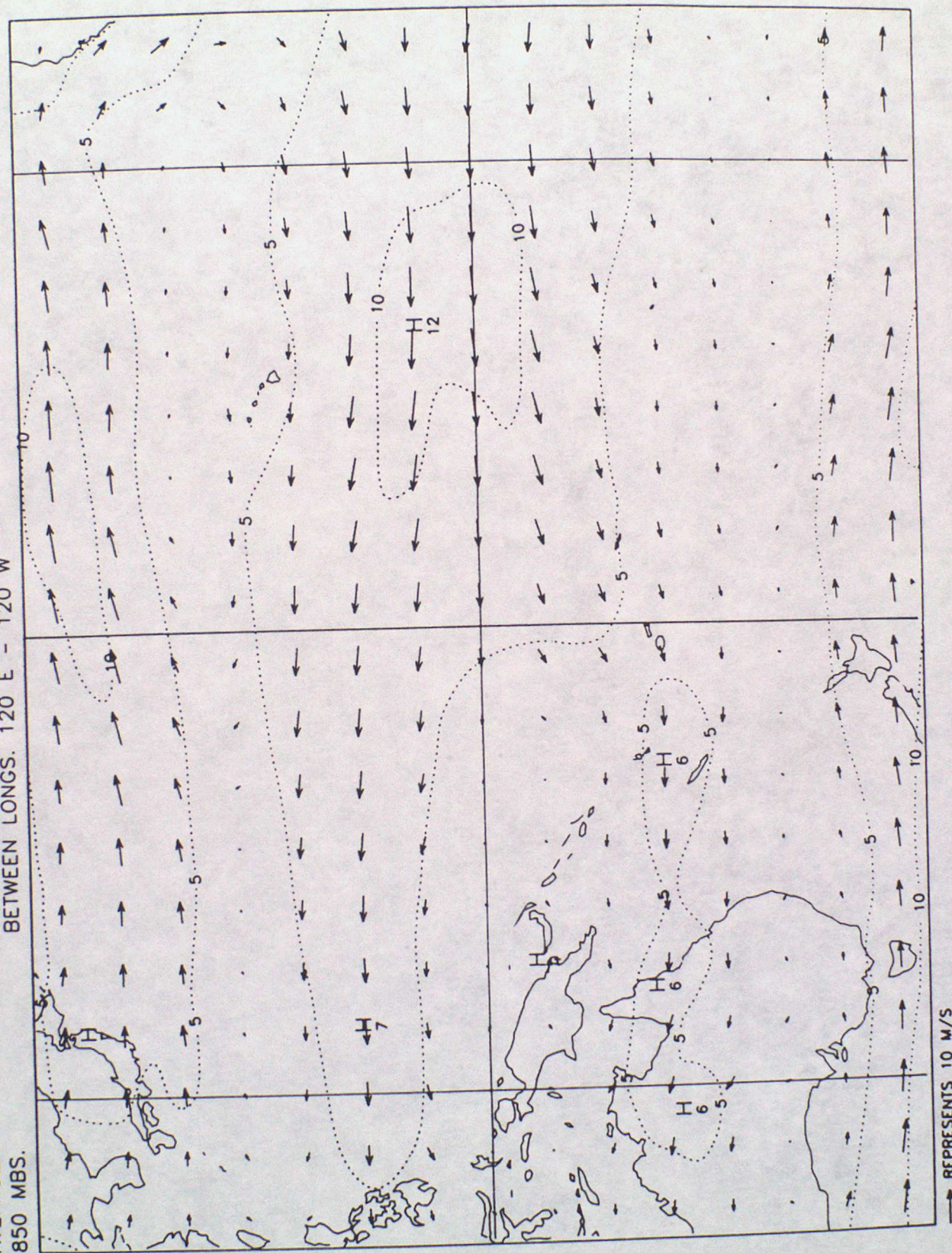


OPERATIONAL ARCHIVE MEANS. MAR/APR/MAY1990
 WIND ARROWS AND ISOTACHS BETWEEN LATS. 45 N - 45 S.
 AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/5/1990 DAY 151
 BETWEEN LONGS. 0 E - 120 E
 850 MBS.

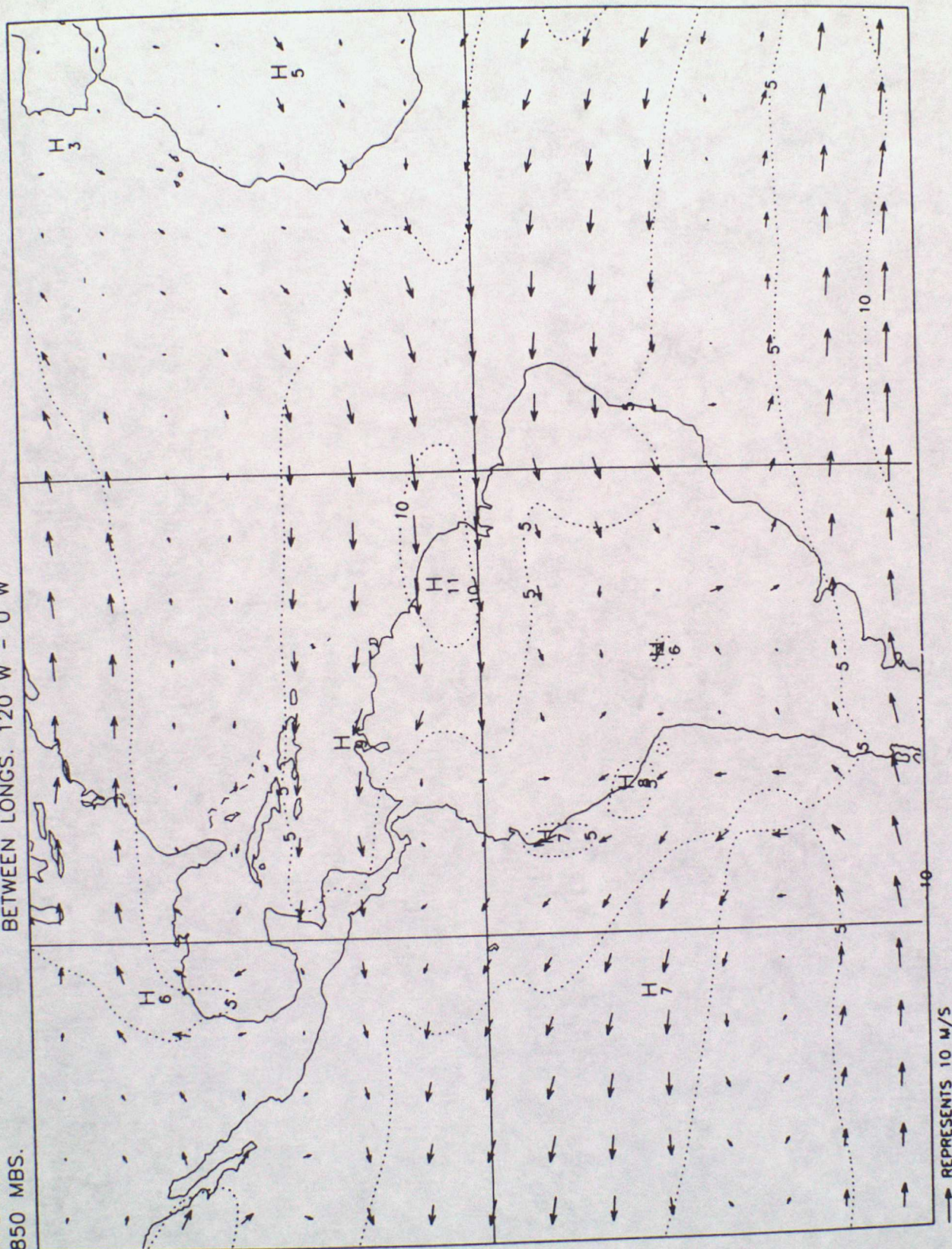


→ REPRESENTS 10 M/S

OPERATIONAL ARCHIVE MEANS. MAR/APR/MAY1990
 WIND ARROWS AND ISOTACHS BETWEEN LATS. 45 N - 45 S.
 AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/5/1990 DAY 151
 BETWEEN LONGS. 120 E - 120 W
 850 MBS.

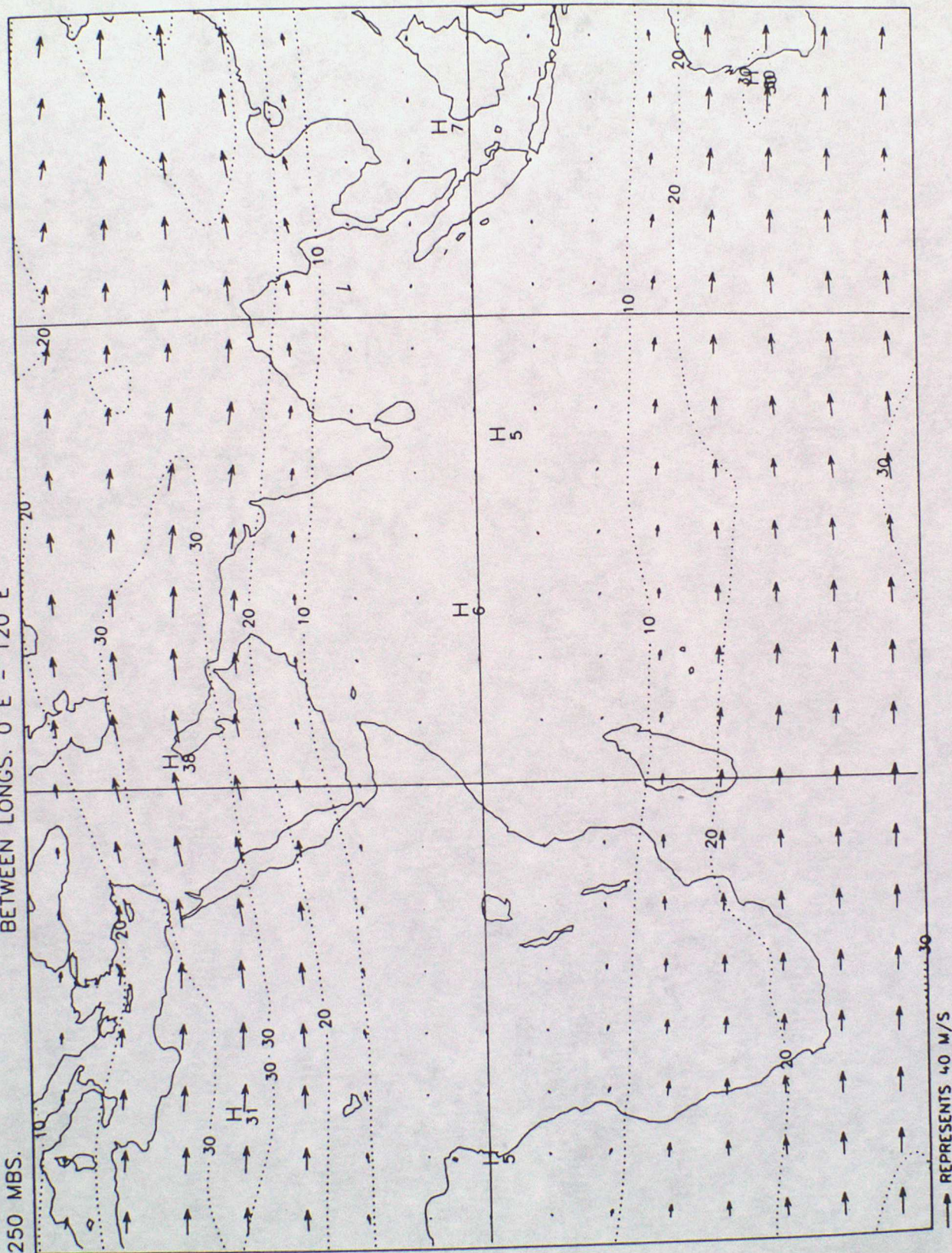


OPERATIONAL ARCHIVE MEANS. MAR/APR/MAY1990
 WIND ARROWS AND ISOTACHS BETWEEN LATs. 45 N - 45 S.
 AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/5/1990 DAY 151
 BETWEEN LONGS. 120 W - 0 W
 850 MBS.



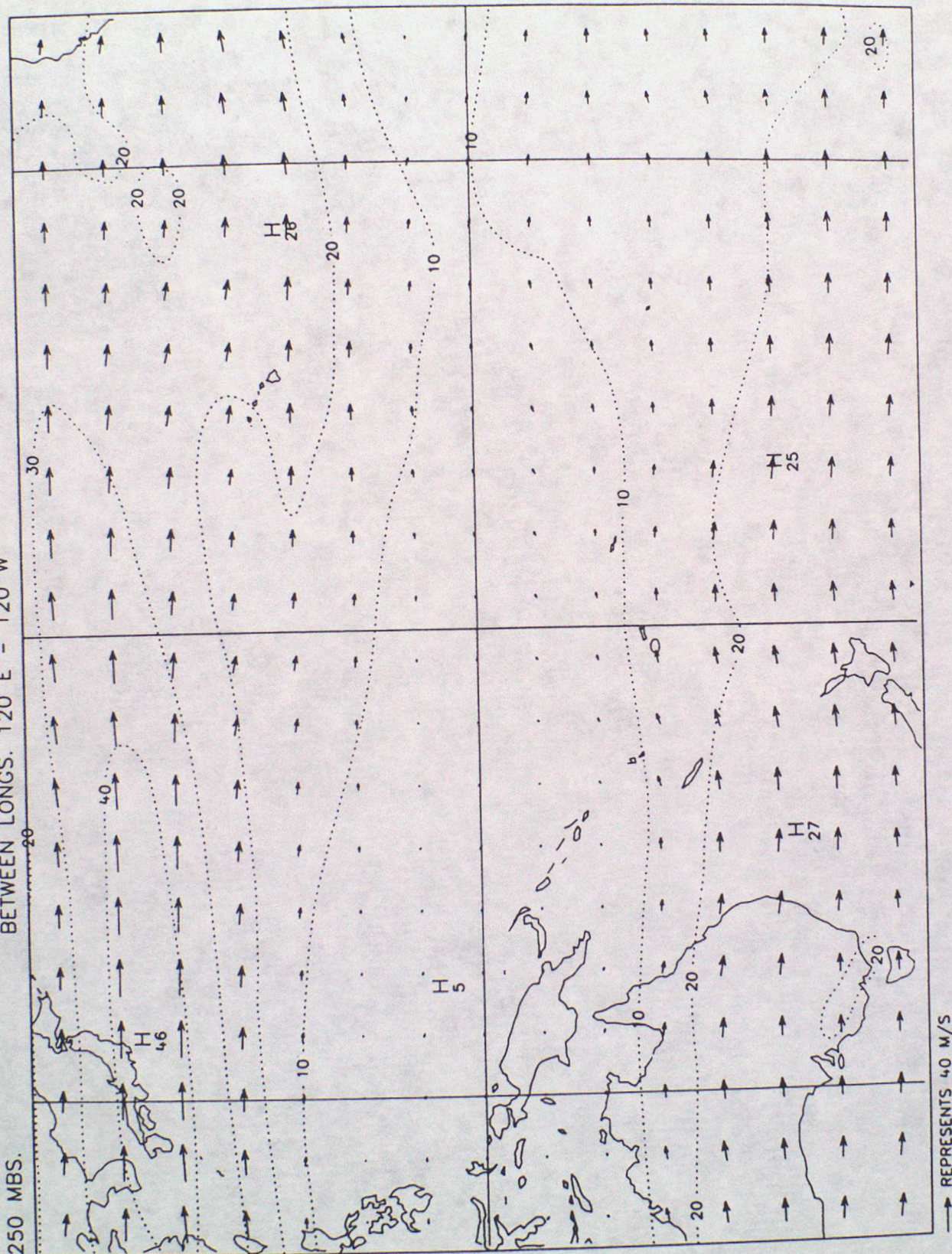
→ REPRESENTS 10 M/S

OPERATIONAL ARCHIVE MEANS. MAR/APR/MAY 1990
 WIND ARROWS AND ISOTACHS BETWEEN LATS. 45 N - 45 S.
 AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/5/1990 DAY 151
 BETWEEN LONGS. 0 E - 120 E
 250 MBS.

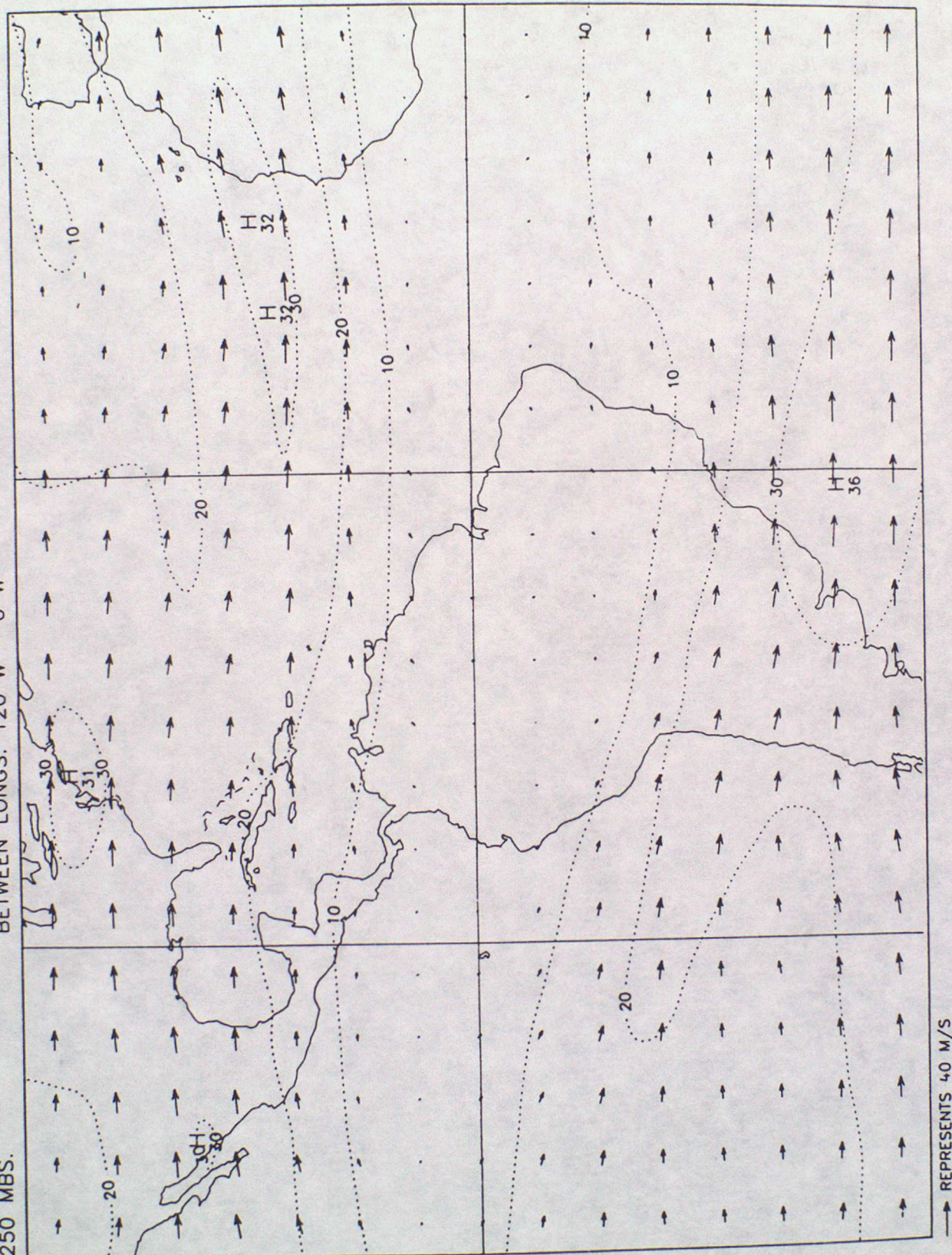


→ REPRESENTS 40 M/S

OPERATIONAL ARCHIVE MEANS. MAR/APR/MAY1990
WIND ARROWS AND ISOTACHS BETWEEN LATS. 45 N - 45 S.
AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/5/1990 DAY 151
BETWEEN LONGS. 120 E - 120 W
250 MBS.



OPERATIONAL ARCHIVE MEANS. MAR/APR/MAY1990
 WIND ARROWS AND ISOTACHS BETWEEN LATS. 45 N - 45 S.
 AVERAGE FROM 0Z ON 1/3/1990 DAY 60 TO 12Z ON 31/5/1990 DAY 151
 BETWEEN LONGS. 120 W - 0 W
 250 MBS.



→ REPRESENTS 40 M/S

